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THE
RUDIMENTS
OF
PHYSICK

CLEARLY and ACCURATELY
Deſcrib'd and Explain'd, in the moſt eaſy and familiar Manner, by Way of DIALOGUE between a PHYSICIAN and his PUPIL.

Under the following HEADS, *viz.*

I. *PHYSIOLOGY*: Or, The Nature and Principles of PHYSICK in general.
II. *HYGIENA*: Which treats of HEALTH, and diſcovers proper Means, and Remedies, for the Preſervation of it.
III. *PATHOLOGY*: Which conſiders the Diſeaſes of the Body and Mind; their Cauſes, Nature, Symptoms, *&c.*
IV. *SEMEIOTICA*: Which treats of the Signs and Indications of Health and Diſeaſe.
V. *THERAPEUTICKS*: Which is employ'd in finding out Remedies for Diſeaſes; and the Method of applying them to perfect a Cure.

To which are added,
Some METHODS of CURE in moſt DISEASES, both Acute and Chronical, according to the Practice of Dr. *Pitcairn*, *Boerhaave*, *Mead*, and others.

Firſt collected from the Inſtructions of a celebrated Profeſſor of MEDICINE *in the Royal Academy of* PARIS:
And ſince Improv'd from the beſt AUTHORS, Ancient and Modern,
By *JOHN GROENVELT*, M. D.
Now firſt tranſlated from the LATIN, reviſed, and corrected in the moſt accurate Manner.

Printed for R. GOADBY, in *Sherborne*; and W. OWEN, near *Temple-Bar*, *London*.

[1753]

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To the Young Student in PHYSICK.

IT muſt be allow'd there are a conſiderable Number of excellent Books in the Art of Phyſick already publiſhed; but there is none, that we know of, that has had a proper Regard to the Improvement of the young Pupil. Moſt of our Phyſical Writers ſeem to write for ſuch as are thoroughly grounded in the Rudiments or Principles of the Art, whereby the *Tyro* is left greatly at a Loſs, and very often never gains a thorough Knowledge of its Principles; ſo that all he practiſes afterwards, is as it were by Rote, following only ſuch Forms and Preſcriptions, as he has either read in

Authors, or ſeen practiſed; without underſtanding in what Manner they act, which is the preciſe and critical Time for applying them, what End is propoſed to be anſwered, what Alteration is neceſſary to be made in them, and the like; whereby too many fatal Miſtakes are committed: Add to this, they are very ſeldom capable of diſcourſing on the Art, or giving the Patient, or the Standers by, the Satisfaction of believing that they underſtand what they are about; and yet this is a Point of no little Importance, with regard to a Man's firſt making his Way into the World. Were we about to build a Houſe, we ſhould be inclined to employ that Architect whom, upon any Occaſion, we had heard diſcourſe Rationally (as far as our Underſtanding of the Subject reach'd) on the Principles of Architecture; and ſo in every other Employment, much more then in ſo important a Concern as that of our

Health and Life, are we prejudiced in Favour of that Perſon, who can give an intelligible Account of the Human Oeconomy, the Reaſons of its Diſorders, and the Power of Medicines.

What we have ſaid above is the Caſe, even in *London* itſelf, much more in the Country. The main Deſign of this Work is, to give the young Pupil a thorough Inſight into the Grounds and Principles of the Art, whereby he will be enabled to perceive the Meaning and Reaſons of all he ſees practiſed during his Apprenticeſhip; and to form a true Judgment when, why, and how far the like is to be done in ſimilar Caſes in his future Practice on his own Bottom. So that we may venture to affirm, that a careful Study of this Book, will give him a truer Knowledge of the Art, than perhaps, a ſeven Years Apprenticeſhip. And how much a better Figure he will make when he ſets up for himſelf; how much ſooner he will gain a Reputation of Knowledge in his Buſineſs; how much better he will be enabled to anſwer the Expectations of his Patient, and ſatisfy himſelf in the Courſe of his Proceedings; from being grounded in the Principles and Rudiments of Phyſick, than from a mere Tranſcript of Recipes only, is too evident to be in the leaſt doubted of.

That great Phyſician *Zypæus*, one of the moſt celebrated of the Royal Academy at *Paris*, firſt drew up this BOOK for the Uſe and Inſtruction of his private Pupils, of whom Dr. *Groenvelt* was one, who aſcribed his future Practice and Reputation to this excellent Foundation of Rudiments; and publiſhed them (as he declares in his Preface) ſolely to communicate to others that, from which he had reap'd the greateſt Uſe and Advantage himſelf.

As a very extenſive Landskip, or a large Palace, may be very exactly and beautifully repreſented by a skilful Pencil on a ſmall Tablet, ſo, a great deal of Learning, and good Senſe (if laid out with Art and Judgment) may be compriſed in a ſmall Volume; and all that is neceſſary to be known in the Art of Phyſick, an Art ſo eſſential to the true Enjoyment of Life! may be rendered ſhort, eaſy, and intelligible.

For this Purpoſe the Antients formed many Syſtems, of which ſometimes one, and then another prevailed; but they are not only ſo very Voluminous, that much, and great Application is required to read them over, but they have been wrote at ſuch a Diſtance of Time, that in the preſent Age, they muſt be allow'd to be of no real Uſe; eſpecially when ſo many new Diſcoveries in Anatomy, and the true Mechaniſm of the human Body, with many

Experiments brought daily into Practice, has, with the greateſt Reaſon, altered both the Theory and Practice, deliver'd us down by the antient Phyſicians.

Moreover all their Syſtems were ſo rigidly accommodated to the particular Problems of Philoſophy then in Vogue, that no Benefit can be received from them, unleſs the Reader entirely devotes himſelf to thoſe Problems, from whence that Syſtem which he intends to ſtudy was formed: If he acts otherwiſe all Means of Conviction are loſt, and he can never underſtand what he reads.

The Work before us removes all theſe Difficulties, by not only delivering the Theory of Phyſick from the Errors, and Ignorance of any particular Sect of Philoſophers, but by eſtabliſhing it on Demonſtration, and a plain Method of Reaſoning.

On this Foundation alone Things appear in their true and genuine

Light, and Dr. *Groenvelt* by a moſt happy Genius, has contracted the whole Subſtance of Phyſick into ſo ſmall a Compendium, that he hath rendered the Study of it both eaſy and pleaſant.

For the Benefit of the young Student an APPENDIX is added, containing the Method of Cure in ſeveral Diſeaſes.

The Reader will in the Courſe of this Work, meet with many Things that may give him Pleaſure, either for their Uſefulneſs, or for the Manner in which they are treated of, on which Account the Peruſal will paſs the more agreeably on; and not only the Pupil, but even the old Practitioner may reap Benefit from it.

How neceſſary a fundamental Theory is to conſtitute an able Phyſician, appears from that juſt Obſervation of *Hippocrates*, quoted by Dr. *Mead* in his Treatiſe *De Imperio Solis et Lunæ.* "That tho' an igno-

"rant Practitioner in Phyſick may "act under favourable Circumſtances, in the ſame Manner as an "unskilful Mariner may ſteer the "Ship, while the Sea is ſmooth and "the Gale according to their Wiſh; "yet when a Storm ariſes, and Dangers ſurround them on every Side, "their Unskilfulneſs ſoon appears, "and being quite at a Loſs how to "act on theſe Occaſions, thoſe under their Care periſh through "their Ignorance.

It may eaſily be perceiv'd, that this Book is none of thoſe ſo juſtly complained of, conſiſting of a mere Repetition of others, or a Collection of Recipes only, without teaching the Grounds of the Science, leaving the Reader as ignorant of the true Nature of Phyſick, as he was before; on the contrary, there has been nothing yet of this Kind in our Language, and its Uſe to young Pupils eſpecially, exceeds any Thing that has been hitherto publiſhed. It is hoped that the Book has been improved in the Tranſlation, as in ſeveral Places ſome uſeful Obſervations have been added by Way of Notes.

That the young Practitioner may diligently peruſe and profit from what is ſo much calculated for his Benefit, is earneſtly wiſh'd (as a Lover of the Science) by the

TRANSLATOR.

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THE RUDIMENTS OF PHYSICK.

CHAP. I.

The Firſt Part of the Principles of Phyſick, or Phyſiology.

Queſtion.

WHAT is Phyſick?

Anſwer. Phyſick is the Art of preſerving Health, and reſtoring it, when loſt; or it is that Science (as you will ſee in the following Treatiſe) by the Knowledge of which Life and Health are preſerved, or loſt Health reſtored.

Q. From whence does Phyſick derive its Origin?

A. From the Diſeaſes which have happened to Men, from the Nature of our Food, from the Actions of Life, and from the Conſtruction itſelf of the human Frame.

Q. What Account have we of Phyſick from ancient Hiſtory?

A. It relates that the *Chaldeans*, and the Eaſtern *Magi*, firſt cultivated the Art of Phyſick for this End, that they might cure preſent Diſtempers, and prevent thoſe which might happen to Mankind.

Q. What Progreſs did Phyſick make in the World?

A. From it's firſt Riſe it ſpread into *Egypt*, from thence into *Greece*, and flouriſhed more particularly in the Iſlands of *Cnidos*, *Coos*, and *Rhodes*.

Q. From whence may we derive the firſt Rudiments of Phyſick?

A. The firſt Rudiments of the Art are owing to Chance, to natural Inſtinct, and to unforeſeen Events.

Q. Into how many Parts is Phyſick divided?

A. Into five, diſtinguiſhed by the following Titles:

Phyſiology, or the Nature and Principles of Phyſick.

Hygeiene, or that particular Branch of Medicine which treats of Health, and diſcovers proper Means and Remedies for the Preſervation of it.

Pathology, or that Part of Medicine which conſiders Diſeaſes, both of Body and Mind, their Natures, Cauſes, Symptoms, *&c.*

Semejotice, or that Part which conſiders the Signs and Indications of Health and Diſeaſe, which enables the Phyſician to know the Riſe, Progreſs, and Event, of each particular Malady, and to foretel whether it may end in Death, or Recovery.

Therapeutice, or that Part of Medicine which is employed in ſeeking out Remedies, and preſcribing and applying them to effect a Cure.

Q. To what is the Progreſs of Medicine owing?

A. It is owing to the Remembrance of it's Effects; for the Diſeaſes were deſcribed upon Tables, containing alſo an Account of the Cures, and theſe were hung up in the Temples of the Gods; the Sick were expoſed in the Streets, and Places of publick Reſort, that they might be informed of the Methods taken by thoſe who had been cured in the like Caſes.

Q. How did the Art arrive at greater Perfection?

A. From thoſe who firſt made Phyſick their Profeſſion, from their accurate Remarks on Diſeaſes, and more diligent Obſervation and Application of Remedies.

Q. What do you infer from the preceding Remarks?

A. That the Practice of Phyſick was originally derived from the moſt exact Collection of Experiments; and afterwards improved, from conſidering the Nature of various Cures, by the Laws of Reaſon: The firſt Part was always the ſame by Neceſſity, Uſe, and Evidence; the latter variable, and changing in almoſt every Part.

Q. What is the End of Phyſick?

A. The chief End of Phyſick is Health; and next to this, the Mitigation of the Symptoms: Preſent Health is to be preſerved by Phyſick; if loſt, to be recovered by it; the firſt of theſe is called the Hygeienic, the other the Therapeutic Part.

N. B. It is not to be objected, that there are ſome Diſeaſes incurable, becauſe the Phyſician does not pretend to cure ſuch, they being out of the Sphere of his Action; nevertheleſs, he may deſcribe them, not as Subjects of his Art, but that they may be diſtinguiſhed and foreſeen, for the Honour of the Phyſician.

Q. I deſire you would more fully explain theſe Things.

A. The End of Phyſick is the avoiding of Pain, Diſeaſe, and Death; accordingly it is the Means of preſerving preſent Health, and of reſtoring it when loſt; therefore whatever is to be known or done in this Art, ought to be directed ſolely to this End.

Q. What is the Object of Phyſick?

A. Man; that is, his Life, Health, Diſeaſes, their Cauſes, from whence they ariſe, and the Means by which they are governed.

Q. What was it proved, afterwards, a great Advantage to Phyſick?

A. Anatomy; by which the Cauſes of Health and Diſeaſes were ſought out with great Diligence; their Beginning, Encreaſe, Criſis, Declenſion, and final Periods, deſcribed through their ſeveral Stages: Anatomy ſhews the Body conſiſts of two Parts, the Solids, and Fluids.

Q. What are the ſolid Parts?

A. The ſolid Parts are the Veſſels through which the Fluids move, or Mechanical Inſtruments, conſiſting of Bones and Cartilages; all the Fluids are contained in thoſe Veſſels, and are moved in them.

Q. What do you obſerve further?

A. The Choice, Preparation, Application, Power, and Succeſs of Medicines, were obſerved. *Democritus,* who lived in the Time of *Hippocrates,* ſpent his whole Time in opening live Animals.

Q. Did Phyſick continue long in the ſame State after *Hippocrates?*

A. Far from it; for, after the Time of *Hippocrates,* Phyſicians divided themſelves into various Sects, diſtinguiſhed by different Appellations: Thus the Followers of *Theſſalus* were called Methodiſts; *Heraclion,* and his Diſciples, Empyrics; till *Galen,* who ſtrenuouſly oppoſed all theſe Sects, reduced Phyſick into a more correct Method.

Q. How long did the *Galenic* Method continue?

A. To the Time of the *Arabians*, who eſtabliſhed a School of Phyſick in *Africa*; they only interpreted the Doctrine of *Galen*, and were followed for ſome Ages.

Q. How was their Doctrine at length amended and refuted; in what Place, and by what Means?

A. The Doctrine of *Hippocrates* was revived in the Academies of *France*, by the Experiments of Chymiſts, chiefly of *Paracelſus*, afterwards of *Helmont*, and others.

Q. How is Phyſick cultivated in the preſent Age?

A. Of late Years it is improved with the greateſt Pains, by Obſervations made in Mechanics, Natural Philoſophy, and Chymiſtry, without Regard to any particular Sect.

Q. How many are the Means by which this Art is acquired?

A. They are two, *viz.* Obſervation and Reaſoning.

Q. What do you underſtand, by Obſervation?

A. It is the Obſervation of all Things in the human Body, either well, ſick, dying, or dead, as well in Reſpect of thoſe Things which happen from internal Cauſes, as of thoſe Things which are produced from external Cauſes by Art, Accident, *&c.*

Q. What do you underſtand by Reaſoning?

A. It is an accurate Obſervation, by which thoſe Things which paſs in the human Body, unobſervable by the Senſes, are diſcovered and demonſtrated: For which End, the given Experiments, being ſeparately conſidered and compared together, all Things are to be remarked, which may plainly be deduced from thence by Reaſon and Experience.

Q. What is the Number of Things, called Natural, in Phyſick?

A. They are ſeven, viz. the Elements; the Temperaments; the Humours; the Spirits; the Parts; the Faculties; the Actions.

Q. What is the Number of Things, called Non-naturals?

A. They are ſix, *viz.* the Air; Food; Motion and Reſt; Sleeping and Watching; the Excretions and Retentions of the Body; and the Paſſions of the Mind.

Q. How many Things are there contrary to Nature?

A. There are three, *viz.* Diſeaſe; the Cauſe of Diſeaſe; and the Symptoms of Diſeaſe. On theſe three Articles depends the whole Art of Phyſick.

CHAP. II.

Of the Elements of Phyſick.

Q. WHAT are the Elements?

A. The Elements are unmix'd Bodies, out of which all other Bodies viſible, in this World, are firſt compos'd, and into which they finally return. The Union, or Conjunction, of the Elements in a Body, is called *Mixtio*, or a Joining together, as the Body, thus formed out of the Elements, is called a mix'd Body.

I agree with the modern Philoſophers in making three Elements, *viz.* Æther, or a ſubtle Matter, or firſt Element, which conſiſts of the fineſt and moſt ſubtile Particles, perpetually moved and agitated, infinitely ſmall, ſome of which are leſs than others, *ad infinitum*, it is purer in the Sun, and in the fixed Stars, than in our Culinary Fires, which are compoſed of this Element; it is to be found in the Pores of almoſt all Bodies, and flows through them continually, like another Ocean upon the Earth, it exerts its Power upon all Bodies, which it does not freely pervade; and hence is the Cauſe of Fermentation in Liquids; and, perhaps, Electricity, which is ſo much talk'd of, and ſo little underſtood.

This ſubtile Matter is the Cauſe of Cold and Heat; for, by agitating certain Corpuſcles, and by impelling them more violently upon the ſmall Fibres of our Nerves, it cauſes in us the Senſe of Heat; as, on the Contrary, the Senſe of Cold is excited in us when the ſmall Fibres of our Nerves are moved by Bodies leſs agitated by this ſubtile Matter.

This ſubtile Matter is of three Kinds; the firſt ſhines, and is hot, as in the Flame of a Candle; the ſecond ſhines not, but is hot as in Lime, mix'd with Water, alſo as in our Blood; the third ſhines without Heat, as in Amber, ſome Worms, Sea-Fiſh, rotten Wood, and other Things ſhining in the Dark, which, on this Account, are called *Noctiluca*.

The Second Species, is the Second Element, or Ætherial, or Celeſtial Globules, which are certain round Particles, very ſmooth and ſmall, but larger than the Particles of the firſt Element; which, according to their various Impulſe on the Drum of the Ear, excite in us the Senſe of Hearing, whilſt theſe ætherial Globules are emitted from a luminous Body, and are impelled upon the Fibres of the optic Nerves, a certain Motion is inſtantly produced upon them, which is convey'd to the Seat of the Mind, which excites a certain Senſe in us, which is called Sight; and that differing according to the various Motion of the Globules in Lines, or Rays, and according to the Diverſity of the Diaphanous Body, or Light of the tranſmitting Colour, carried by the Help of the Globules to the Bottom of the Eye, and from thence, through the Optic Nerves, determine the Mind to ſee this or that colour'd Object.

Laſtly, The third Element, or earthly Matter, conſiſts of ſmall Particles, but larger than thoſe of the firſt and ſecond Element.

Ariſtotle makes four Elements, which are Fire, Air, Water, and Earth.

It is ſufficient for the Phyſician to know, that our Bodies conſiſt originally of Particles, very different in Size and Figure, *viz.* thick, ſmall, heavy, light, ſoft, hard, flexible, rigid, acute, ramoſe, *&c.* The Chymiſts make all conſiſt of Salt, Sulphur, and Mercury, ſeeing theſe Things may be extracted from moſt Bodies by the Force of Fire; but Gold, burnt Talc, and Glaſs, cannot be reduced into theſe three Principles, or ſcarcely into any one of them, by any Degree of Fire whatſoever.

So, human Blood may be reſolv'd into Phlegm, Salt, Oil, Spirit, and Earth; the ſame may be done by Harts-horn; though Salt, Sulphur, and Mercury, may be extracted from ſome Bodies by Fire, it does not follow from thence, that they were the firſt Principles of them; for, perhaps, they were produced by the Force of the Fire; and, beſides, they are not entirely unmix'd Bodies.

CHAP. III.

I Shall add ſome Things which relate to Phyſick, and are taken from the Conſideration of the Elements.

Our Bodies would ſoon decay, if they were not daily ſupply'd with what we take inwardly; as appears plainly to the Senſes. Experience will teach us, that this Change of Food into the Subſtance of our Bodies, is more eaſily effected by varying the ſeveral Kinds of Nouriſhment, and the ſeveral Ways of preparing them.

Hygeiene, which treats of Health, and the proper Means of preſerving it, will teach us Variety of Foods and Liquors are neceſſary: In Fruits there is ſcarce any Preparation, but Maturation, either by Nature or Art. The Effects of all theſe Preparations, is the Separation of the Parts, and a more proper Diſpoſition of them to Fluidity, for the better Nouriſhment.

CHAP. IV.

Of Temperament in General, and ſome of its Species.

Q. WHAT is Temperament in General?

A. Temperament, in general, is a convenient Proportion of the Elements in themſelves, and their Contexture in ſenſible Bodies.

Q. How is Quality divided?

A. It is divided into firſt and ſecond Qualities: Amongſt the firſt Qualities, and moſt conſiderable, theſe four are conſidered; Heat, Cold, Moiſture, and Dryneſs, of which that Quality which predominates, denominates the Temperament.

Q. How many Diviſions do you make in the firſt Quality?

A. Two; one is firſt in Action, which immediately affects us in the firſt Contact; the other is firſt in Power. The firſt Kinds are, the Heat of common Fire; the Cold of Water. The Changes of theſe may be obſerved; and theſe Things being changed, compoſe the Body of Man: Thoſe Things which are taken to ſuſtain the Body, are ſolid, or liquid; and accordingly eaten, or drank; the firſt Matter of theſe is Water, and the natural Produce of the Earth; this appears by Sacred and Profane

Hiſtory, and from Nature itſelf. Then the ſolid Parts of Animals, and ſome Fluid, with Vegetables, are prepared for our Food; and, indeed, ſome Nations have lived intirely upon Vegetables; *Nebuchadnezzer* eat nothing but Graſs.

Q. What do you infer from hence?

A. As Man makes uſe of all theſe Things, either mix'd, or ſeparate, raw, or prepared; and as, by their Uſe, he lives and ſupports himſelf; and as, in ſuch a Variety of Diet, the ſenſible Qualities ſcarcely differ; it follows, that all theſe Products of the Earth, and Sea, may be changed into the liquid and ſolid Parts of Man.

Q. I deſire you would explain, mechanically, thoſe Qualities which you mention.

A. The firſt Quality is in Power, as Heat in Pepper, Cold in Lettuce, *&c.* Actual Heat, is a ſtrong, quick, and confuſed Motion (as in the actual Burning) of the inſenſible Parts of the Body: Actual Cold, *a parte rei*, is a Privation of the ſame Motion: Potential Heat, *a parte rei*, is ſuch a Diſpoſition of the Particles in any Body, that, upon touching our Bodies, makes ſuch Pores, that the Æther, or ſubtle Matter, moves itſelf in them more ſtrongly, and excites Heat, as the Heat in Pepper; whence thoſe Things heat us which produce a quick and confuſed Motion in our Particles: Potential Cold, *a parte rei*, is ſuch a Diſpoſition of the Particles in any Thing, that, upon the touching our Bodies, makes ſuch Pores, that the Æther, or ſubtile Matter, moves in them in a weaker Manner, and excites cold, as the Coldneſs in a Lettuce; whence thoſe Things produce Cold in us which can reſiſt, diminiſh, or rectify the quick and confuſed Motion in our Particles.

That Heat is the aforeſaid Motion, and Cold the Privation of it, appears from hence; that wherever ſuch Motion is, there is Heat; and, where it is abſent, there is Cold.

A partial Temperament, is that which is peculiar to any Part, as the Temperament of the Brain, of the Heart, *&c.*

A total Temperament, is that which being made up of ſeveral Parts, is aſcribed to the Whole, as the Temperament of the Whole.

Laſtly, Temperament is divided into native and acquired: The native Temperament, is that which every Perſon receives at his Birth: The acquired Temperament, is that which happens in a Courſe of Years, by the Non-naturals, or Contra-naturals.

The native Temperament does not abſolutely remain the ſame during the whole Time of Life; and yet it may, through the Equality of the Non-naturals; ſtill this remains longer than the acquired Temperament, becauſe it is deeper rooted; and if, by the meeting with Contraries, it is not quite deſtroyed, it never gives way, or ſoon recovers itſelf; whence it is very difficultly loſt in Children.

The native Temperament reſides chiefly in the Blood and Spirits, to which the other Parts owe their Temper.

CHAP. V.

Of the Oeconomy of the human Body.

WHILE we treat of Phyſiology, it will not be improper further to deſcribe the Oeconomy of the human Body. In the End of the Third Chapter, I mentioned the Secretion of the groſſer Parts; for the better underſtanding of which, I ſhall explain the new Form the Food receives from the Organs of the Mouth: This is chiefly effected by biting and chewing, which is performed in the following Manner.

1. By the drawing down the Lower-Jaw from the Upper, by the Contraction of the two ſlender, oblong, biventer Muſcles, which ariſe from the upper Part of the Proceſſus Maſtoideus, and end at the Styliformes in a round Tendon, which paſſes through the Stylohyoideum and the annular Ligament fixed to the Os Hyais, and from hence, by a new

Belly, deſcends into the Medium Internum of the Bottom of the Chin. (*Veſ. L.* 2. *T.* 5. *Litt. H.* 1.)

2. By the compreſſing and drawing up of the Lower-Jaw to the Upper by contracting the Muſcles as follows.

1. Of the Temporal Muſcles, which ariſing from the Bones of the Vertex, Forehead and Temples, inſert themſelves with a ſtrong, wedge-like, and ſhort Tendon, into the upper acute Proceſs of the Lower-Jaw. (*Verſal. L.* 2. *T.* 5. *L. B.*)

2. Of the Maſſeter Muſcles, which are triangular, thick, ſhort Muſcles, ariſing from the Os Jugale, and the Upper-Jaw-Bone, at the leſſer Angle of the Eye, from whence they run out to the Ear, and fix their Tendons to the inner Edge of the Lower-Jaw. (*Veſal. L.* 2. *T.* 4. *L. D.*)

3. The Food being broke by the Dentes Inciſores, is taken into the Mouth by the gentle Compreſſion of the Muſcles of the Lips and Cheeks againſt the Jaws, chiefly by the Help of the Sphincter of the Lips, and of the Buccinator (*Veſal L.* 2. *T.* 4. *Lit. M. N.*) Then, by the Help of the Tongue, moved by its Muſcles (*Malpigius de Lingua*) is confined and turned upon the broad, unequal, concave, acuminated Surface of the Dentes Molares, where, being detained, it is preſſed, ground, and attenuated, by the Motion of the Lower-Jaw; to which Effects concur, firſt, the compreſſing Motion; ſecondly, the Motion

forward, by the Help of the outward Pterygoidei, which ariſing from the outward Part of the Alæ Veſpertilionum, going backwards, are inſerted between the Proceſſus Condyliformis, and the Corona (*Veſling. Tab. Cap.* xiii. *Fig.* 11. *Lit. E. E.*) and by the Help of various Fibres in the Temporal and Maſſeter Muſcles. Thirdly, The Motion backwards, by various Fibres of the Temporal, Maſſeter, and Biventer Muſcles, acting by a determined Concurrency. Fourthly, The lateral Motion which is performed by the inward Pterygoidei, which ariſing from the inward Part of the Proceſſus Veſpertilionum, are inſerted by a ſtrong Tendon to the back Part of the Lower Jaw, about the Angle (*Veſal. L.* 2. *T.* 6. *L. D.*) but the Effects may be varied by the various Concurrence of the ſeveral Agents. Thus the Food is ground, and is directed between the Molares, by the Tongue, and the various Parts of it expoſed to various Triturations, and ſo Maſtication, or Chewing, is perform'd. By this Motion of Maſtication ſuch Changes happen in the Food (as in the laſt Paragraph of the Chapter on the Elements.) But many other Parts of the Mouth are neceſſary to be known.

Near the Parotid Conglomerate Gland there is another Conglobate Gland, from which the Saliva flows into the Mouth, the Duct opening in the Cheeks, about the third Upper Great Tooth (*Steno Obſervat. Anat.*) and from the Maxillary Glands (*Wharton C.* 21.) and from the Sublingual Glands of Bartholine (*Philoſ. Tranſact.*) the Saliva and Mucus of the Palate and Jaws do alſo diſtil (*Schnieder de Catarrh. Lib.* 3. *S.* 2. *C.* 111. *Fig.* 2, 3, 4.) which never fails in healthy Perſons. While contained in the Mouth, the Saliva is very ſpumous, and in Hunger is more copious, fluid, and acrid; in thoſe that faſt, it has a very detergent Quality, taking away Pimples, Scars, and Spots; and being mix'd with Paſte, makes it ferment; being mix'd with the Juice of Vegetables, it makes them ferment, and changes them into inflamable Spirits; it is ſwallowed by Brute Animals, by Perſons that ſleep, and by thoſe that enjoy Health.

A voluntary Spitting in Exceſs, occaſions an *ἀνορεξίαν* *, *δυσπεψίαν*, *ἀτροφίαν* the Saliva in ſound Perſons is taſteleſs, and conſiſts of Water, Salt, and Spirit, which may be found by a Chymical Exhalation.

The Motion of Maſtication attenuates the Food, and ſqueezing the Saliva from its Sources, mixes them together, the Saliva ariſing from the arterial Liquid, is like the Liquids flowing in our Veſſels.

Therefore this Mixture helps,

1. To a Likeneſs of the Body to be nouriſhed.

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* The Diſorders comprehended under theſe three Terms are, a Loſs of Appetite, Nauſea, Atrophy, &c.

2. To promote the mixing of the oleous with the watery Parts.
3. To diſſolve the Salts.
4. To a kind of Fermentation.
5. To the Change of Taſte and Smell.
6. To induce the inteſtine Motion.
7. To the preſent ſatisfying of Hunger.
8. To convey Taſtes, as it is inſipid itſelf.

The Saliva therefore, as it is uſeful to ſo many Purpoſes, and elaborated by ſo many artful Contrivances, is very wrongly rejected as an Excrement. By the Motion of Maſtication, and mixing of the Saliva, the Air is mix'd with the Morſels of our Food, and by its native Elaſticity, Fluidity, and Gravity excited by the Heat of the Body, and differing every Moment by the various Preſſure, prepares, attenuates, renders fluid, and gives inteſtine Motion to the maſticated Maſs.

Voracious and very hungry Animals don't chew much, but by a long Maſtication of the Food, the Chyle is kept more in the Mouth, and Hunger is much ſooner appeas'd; from whence it is plain, that this Action is very neceſſary and wholſome.

CHAP. VI.

Of the Temperament of particular Parts, and the Signs of Temperament.

Q. OF what Quality are the Parts of a Body?

A. Every Part of a Body, in Regard to itſelf, is hot and moiſt; for theſe Qualities are neceſſary to Life; but being compared with each other, they are ſo different, that ſome of them are rightly called hot, cold, moiſt, and dry. In Purſuance of this Method, theſe are reckoned hot, as the Heart, the Blood, the Spirits, the Arteries, the Veins, the Lungs, the Spleen, the Liver, *&c.* The Heart is of the warmeſt Quality, the Spirits are not; for, although they move with great Celerity, yet they do not move vehemently, and with any Thickneſs, as is neceſſary to Heat, otherwiſe the Nerves would be of the warmeſt Quality.

The cold Parts are, the Bones, Cartilages, Tendons, Membranes, Ligaments, the Spinal Marrow, *&c.*

The Temperament is alſo different, according to the Difference of Sex and Age.

Q. What is the Sex.

A. It is a Modification, ariſing from the different Formation and Temper of the Genital Parts.

Q. How do you diſtinguiſh the Sexes?

A. Into Male and Female.

Q. Which is the hotter?

A. The former; yet, I confeſs, ſome Viragoes are hotter than the Males.

Q. What is Age?

A. Age is a Part of the Time of human Life, in which ſome remarkable Change is obſerved. The Cauſe of the ſeveral Ages, is the various Proportion of native Heat, from that Time of Life, proceeding from the ſeven Naturals, or the Contra-naturals; from whence the ſeveral Ages are not always confined to the ſame Space of Time, or Number of Years, but happen to ſome ſooner, to others later, for ſome grow old ſooner than others.

Q. How are the Ages divided?

A. Into eight Parts; 1. Infancy extends to the 3d Year. 2. Childhood to the 10th Year. 3. Puberty to the 18th. 4. Adoleſcence to the 25th. 5. Youth to the 35th. 6. Virility to the 50th. 7. Old Age to the 60th. 8. Decrepit old Age comprehends the reſt of Life.

Q. How is old Age preſerved?

A. By Foods that are ſtrongly nouriſhing, and by generous Wines, which may ſupport the decay'd Heat.

CHAP. VII.

Of Natural Heat, and Vital Warmth.

HAVING finiſhed what I have to ſay on Temperament, it will be proper to add ſomething concerning our natural Heat, according to the Difference, of which we ſhall alſo find a great Difference of Temperament.

Q. What is our Natural Heat?

A. Our Natural Heat is nothing more than a ſwift and confuſed Motion of the ſubtile Matter, or of a ſmall Fire, without Light (ſuch as is perceived in quick Lime mix'd with Water, in the various Fermentations of Chymiſts, in Horſe-Dung, and in Herbs putrifying in a Heap) yet hot, and differing only in Degree from common Fire.

Q. Whence does this Motion ariſe?

A. This Motion ariſes becauſe the ſubtile Matter, inſinuating itſelf into the Blood, not finding a free Paſſage, but being obſtructed thereby, muſt therefore exert its Power upon the Particles of the Blood, and agitate them confuſedly; therefore, as it proceeds from the ſame Cauſe as Fermentation, as you will preſently underſtand, and as the ſeveral Fermentations are performed by Heat, I judge it right, to aſcribe our Natural Heat to the ſame Cauſe.

Q. What is Fermentation.

A. Fermentation is an inteſtine Motion amongſt the heterogenous Parts of any Body, by which it is by ſome Means agitated, and grows full of Air.

Q. How is Fermentation effected?

A. Fermentation is performed in this Manner, becauſe the ſubtile Matter paſſing thro' certain moiſt and fluid Bodies, meets and ſtrikes upon certain rigid Particles, and leſs flexible, ſwimming in them; ſome not having the proper Particles, breed Confuſion, and then the ſubtile Matter inſinuates itſelf in greater Quantity into the Particles that may be fill'd, and ſo rarifies and exalts the ſaid Bodies.

Q. Explain this Matter more fully.

A. In the ſame Manner as a certain Number of Men will take up more Space of Ground, if they are in a confuſed Motion, than if they ſtood ſtill cloſe together. This is frequently ſeen in humid Bodies, or which have ſome Particles mingled with others, gently moved amongſt themſelves.

Q. But what happens on the contrary?

A. If theſe Particles are moved amongſt themſelves more ſwiftly and confuſedly, ſo much more Space do they require: We ſee this in Wine, which all the Winter hath *lain ſtill* (vulgarly ſpeaking) but has only had a ſmaller Motion of its Particles, in the Spring, when the Rays of the Sun grow more powerful, and therefore the Motion of the ſubtile Matter grows ſtronger (for Wine has its rigid, as well as tartarous and other Particles) the Veſſel containing it would burſt, if it had no Vent; therefore the Rarefaction of every Liquor is not properly Rarefaction, but only that which is cauſed by an internal Principle, or heterogenous Parts, or Diſſimilitude of its Particles, by which the ſubtile Matter is oblig'd to preſs more ſtrongly for a Paſſage; conſequently that is not Fermentation in Water, or any other more homogeneal Body rarified by Fire, for ſuch only boils from the Plenty of ſubtile Matter outwardly impelled on it, and not from an internal Cauſe.

Q. How is Native Heat divided?

A. Into that implanted by Nature, and that which is continually flowing in; the firſt is what we receive at our Birth, the latter what leads the other into Action. Obſerve, that many diſtinguiſh Native Heat into theſe two Parts, as if there was ſome Native Heat implanted at our Birth in every Part, which continues the whole Time of Life.

But it appears from what has been ſaid, that all Native Heat is in the Blood; ſo that the ſecond Diſtinction is intirely without Foundation; eſpecially as thoſe who make theſe Diſtinctions confeſs, that Native Heat can do nothing of itſelf, but is put in Motion by the other Principle, therefore has no Effect alone.

Q. How is Native Heat continued?

A. From the ſubtile Matter, which is produced from the Aliment, and carried to the Heart in the Chyle and Blood; therefore the Heart is the Seat of Native Heat.

Q. Does not the Native Heat encreaſe?

A. It encreaſes to the Time of Manhood, becauſe, as we arrive nearer to it, ſo much the more it is freed from vapid Excretions, and, in breathing, it is better fann'd by the greater Motion of the Body, and is more augmented than in the Circulation of the Fœtus.

Obſerve, that in the Fœtus the whole Maſs of Blood does not paſs through both the Ventricles of the Heart, but is carried on by a different Mechaniſm. *Vid. Lower de Corde.*

Q. When is Heat firſt produced?

A. When the Soul is firſt joined to the Body ſufficiently organized, which cannot be exactly determin'd, as then we begin our Exiſtence; but if it is underſtood of our whole Matter, then it is elder than ourſelves.

Q. What is Native Heat?

A. It is the oleous and fat Subſtance of our Bodies; the ſame is call'd the radical Moiſture, and primogenial Moiſture.

Q. What is Nature?

A. Nature is a due Motion of the Blood and Spirits, and a juſt Formation of the

Parts, with Reſpect to the Pores, the contracting Fibres, the greater Paſſages, *&c.* for it is theſe Things only which expel all noxious Particles out of the Body, retain the Good, ſupply what is deficient, and perform all the Functions which are aſcribed to Nature.

CHAP. VIII.

Of the Humours.

Q. WHAT is a Humour?

A. A Humour is a liquid, palpable Subſtance, produced in the Body from Food, according to Nature.

Q. Why is it called Liquid?

A. To diſtinguiſh it from the Fæces and ſolid Parts.

Q. Why palpable?

A. To diſtinguiſh it from the Spirits, which is alſo a liquid Subſtance, but impalpable from its extreme Volatility.

Q. Why produc'd in the Body?

A. To diſtinguiſh it from Liquids newly taken.

Q. Why according to Nature?

A. That you may underſtand I do not ſpeak here of preternatural Humours.

Q. What is the Chyle?

A. It is a certain Liquid Maſs formed from the Food in the Stomach.

Q. How is it carried out of the Stomach?

A. It is carried out of the Stomach, partly by the Muſcles contracting the Abdomen; partly by the Impulſe of the Liver, and; laſtly, by the periſtaltic Motion, or the vermicular, ſucceſſive Contraction of the annular Fibres of the Stomach, from the upper Orifice to the lower, by which the Stomach is ſucceſſively made narrower, and the Chyle is forwarded to the Pylorus, and the Inteſtines, to be further perfected.

Q. How is Chyle produced?

A. At the Time of taking our Food, and alſo before and after: The Saliva is continually ſwallow'd; the Moiſture of the Æſophagus continually diſtills; the Lymph of the Stomach, and the Remains of former Meals, are mix'd with the preſent Food we take; where, by Means of the digeſtive Heat, it is diluted, attenuated, *&c.* and render'd fit to be diſtributed to thoſe Paſſages of the Body thro' which it is to flow.

Q. What becomes of the Chyle when it arrives in the Bowels?

A. It is there further elaborated, as well by the Ferment which it carries with it out of the Stomach, as by the Gall and pancreatic Juice, which Juices meeting in the Duodenum, and being mix'd with the Chyle, ferment together, by which Means the Chyle is further prepared, till it is thin enough to paſs into the Lacteal Veſſels.

Q. What are the Lacteal Veſſels?

A. They are certain Veſſels, innumerable, of a particular Kind, ſo ſmall, that, unleſs they are full of Chyle, they are inviſible, and which ariſe from every Part of the ſmall Inteſtines, and enter the great, or central Gland, on every Side; but very few are found in the great Inteſtines.

N. B. Theſe Lacteal Veſſels are called Veſſels of their Kind *(ſui Generis)* or rather Veſſels of the *firſt Kind.* In Reſpect of the Veſſels that are formed of theſe, united into fewer and larger Pipes, which make a Reſervoir, or larger Gland, which is the Beginning of the thoracic Duct. Theſe are the Veſſels of the *ſecond Kind.*

Q. How are the Lacteal Veſſels placed in the Bowels?

A. In the ſame Manner as the Ureters are inſerted into the Bladder; *i. e.* the Lacteal Veſſels do not enter the Inteſtines with open Mouths, but are placed obliquely between their Coats; ſo that the Lacteal Veſſels do not admit the Air from the inflated Bowels.

Q. What becomes of the Chyle when it is lodged in the Bowels?

A. In all the Inteſtines the Cream of the Chyle, or its finer Parts (the groſſer being retained) is conveyed to their Sides, or inner Surface, and is abſorb'd by the Lacteal Veſſels;

ſels; and, that this may be the more conveniently done, it is thruſt ſlowly forwards by the periſtaltic Motion of the Bowels, from their Beginning to their End, the Valves of the Inteſtines aſſiſting herein; and it is thus carried to be received by the Lacteal Veſſels.

Q. How does the Chyle enter the Lacteal Veſſels?

A. The Chyle does not enter the Lacteal Veſſels with the periſtaltic Motion, in the Way that many imagine; for that is performed by the Contraction of the tranſverſe Fibres, by which, of Conſequence, the Lacteal Veſſels are ſhut.

Q. But in what Manner?

A. By the Preſſure of the Abdomen, and the Deſcent of the Diaphragm, the Sides of the Bowels preſs the Chyle which they contain, and ſome Part of the Chyle paſſes into the ſpongy Coat of the Bowels, and is received by the Lacteal Veſſels (ſuppoſing theſe Veſſels not contracted at that Time, for then nothing would enter, though afterwards they may be contracted, for the periſtaltic Motion is performed ſucceſſively by the Contraction of the Fibres) and by the ſucceeding periſtaltic Motion, part is preſſed upwards, and part returns into the Bowels; therefore this Motion is rather fitted to promote the Motion of the Chyle already received into the Lacteals, than to receive it at its firſt Paſſage out of the Bowels.

Q. The more noble Part of the Chyle being thus ſeparated, what becomes of the groſſer Parts?

A. They form the Fæces; which, though they are formed in all the Inteſtines, are chiefly ſo in the Colon and Rectum (as it happens in all Things where there is a Separation of the more noble from the ignoble Parts) for before the Chyle can arrive there, the greateſt Part of it is imbib'd, and the Fæces excreted.

Q. What becomes of the Chyle when it hath enter'd the Lacteal Veſſels?

A. It proceeds to the great Gland of the Meſentery, towards which all the Lacteal Veſſels tend, as towards the Center, and is ſtrained through it by winding Paſſages, perhaps, that it may move the ſlower thro' the Lacteals, and its whole Quantity obtain a quicker Motion through the thoracic Duct, if (as ſome affirm) the thoracic Duct would not be ſufficient to receive the Chyle carried thither directly from ſo great a Number of Lacteal Veſſels.

Q. By what Motion does the Chyle proceed to the common Receptacle?

A. The Chyle proceeds through the Lacteal Veſſels of the Meſentery, and alſo thro' its great Gland, and to the Ciſtern, or common Receptacle of the Chyle, partly by the Motion received from the periſtaltic Motion of the Bowels, partly from the continual

Succeſſion of new Chyle, by which it is preſſed upwards; the Valves of the Lacteals preventing its Return, and their natural Propenſion to Conſtriction greatly aſſiſting herein, it arrives at the ſaid Receptacle.

Q. Where is this Cyſtern, or Receptacle, ſituated?

A. It is ſituated between the Tendons of the Diaphragm, in the Place where they are joined to the Spinal Bone, and receives lymphatic Veſſels from all the lower Parts, which are contained in the Bowels, that the Chyle might be diluted by their Lymph, for the more eaſy Paſſage thro' the thoracic Duct.

Q. What happens further to the Chyle in its Paſſage.

A. Becauſe the Chyle, with the Cauſes already aſſign'd for its Motion through the Lacteal Veins, would make its Way difficultly from the Bowels to the internal axillar Vein, into which the thoracic Duct is inſerted, and would be liable to coagulate, it receives a freſh Shock from the Diaphragm in the Midſt of its Paſſage, every Motion thereof ſhaking the Receptacle, by Means of its Tendons.

Q. Whither is the Chyle convey'd from the thoracic Duct?

A. It is convey'd directly to the ſubclavian Vein from the thoracic Duct, to which the ſaid Duct is inſerted ſometimes by ſeveral Mouths, and ſometimes by one larger, that the Blood may be mingled with the Chyle in the Vein aforementioned, and convey'd from it to the Vena Cava, and the Heart. Into this Duct flows all the Lymph of the whole Thorax. (*Vide Aſell. & Wharton de Lact. Pecquet de duct. Thoracic. Lower in L. de Corde Cap.* v.

Q. Is the whole Chyle, thus mingled with the Blood, converted alſo into Blood?

A. The Chyle, thus mingled with the Blood, is not preſently and intirely changed into Blood, for its Nature is ſo different from it, that it requires ſome Time to circulate, before it receives an intire Change.

Q. How prove you this?

A. It is confirm'd by Experience; for if you draw Blood from a Man, or any other Animal, five or ſix Hours after eating heartily, a certain milky Humour will float upon it, ſcarcely differing from that in the thoracic Duct, which can be no other than the Chyle, which floats in the Blood for a certain Time after eating, and then diſappears, having acquired a red Colour.

CHAP. IX.

Of the Excrementitious Humours in General.

Q. WHAT is an Excrementitious Humour?

A. It is a Humour which is, in its Nature, unfit to be converted into our Subſtance, in which it is generated.

Q. How is it divided?

A. Into natural and preternatural.

Q. Which is the natural?

A. That which has no hurtful Quality to our Nature.

Q. Which do you call preternatural?

A. The preternatural comes under the Head of Pathology, and is there conſidered.

Q. But how do you divide the natural Excrementitious Humour?

A. Into neceſſary and unneceſſary.

Q. Which is, in its Nature, uſeful?

A. The natural Excrementitious Humour, is that which is applicable to ſome Uſe: As the Milk, the Seed, the menſtruous Blood, the Blood that nouriſhes the Fœtus, the Gall, the Serum of the Blood, the Humour of the Pericordium, the acid, or digeſtive Humour of the Stomach, the Saliva, the pancreatic Juice, the Lympha, and inteſtinal Mucus.

Q. What are the natural unneceſſary Humours?

A. Thoſe which are of no Service to the Body in which they are formed: As the Urine, Sweat, Tears, the Mucus of the Noſe, the Blood in Child-Birth, the Waters in the ſame, the hemorrhoidal Blood, the Ear-Wax.

CHAP. X.

Of Milk.

Q. WHAT is Milk?

A. Milk is a Portion of the Chyle, ſeparated in the milky Tubes, by the Glands of the Breaſts, for the Nouriſhment of Children.

Q. What are the Lacteal Tubes?

A. They are Veſſels proper to the Breaſts, which ariſe from their innumerable Glandules, and terminate in the Nipples by many Openings.

Q. What is the Matter that makes Milk?

A. It is made of the Chyle, and not of the Blood.

Q. How do you prove it?

A. If the Nurſe takes a purging Medicine, it preſently mingles with the Milk, and purges the Infant; and ſometimes it will purge the Infant only, and not the Nurſe. Saffron, burnt Wine, and other Things, taken inwardly, communicate their Taſte and Smell to the Milk in the Space of half an Hour. Beſides, the Nurſe, after a large Draught, preſently feels ſomething deſcend into the Breaſts, with a Kind of Chillineſs and Diſtention, which would not happen, if the Matter of Milk was Blood.

Q. By which Way is the Chyle conveyed to the Breaſts?

A. It is by the thoracic Duct, from which certain ſmall Branches, about the Claviculæ, or Shoulder Bones, are turned back towards the Breaſts and Sternum.

Q. How do you prove this?

A. Becauſe thoſe Branches are diſtributed to the Breaſts from the thoracic Duct, and the Receptacle of the Chyle, which is ingeniouſly demonſtrated by *Bilſius*, in his Treatiſe on Secretion.

Q. Are theſe Paſſages yet diſcovered in Men?

A. They are not; but I am of Opinion, that theſe Paſſages are the Arteries, and that the Chyle, which is the Matter of Milk, flows to the Breaſts with the Blood.

Q. Have Women Milk when they are with Child?

A. They generally have, ſome Days before their Delivery; not becauſe the menſtruous Blood, or that which nouriſhes the Fœtus, being now ſuperfluous, flows back through the epigaſtric Veſſels to thoſe of the Breaſt, but becauſe in Women with Child, near the Time of Delivery, the Womb being greatly diſtended, preſſes upon the Blood Veſſels of the lower Belly, and ſo the Blood returns upwards, and, by its Quantity and Heat, hath more Power to open the Pores of the Glands of the Breaſts, and is the Cauſe that the *Tubuli Lactei* are enlarged, and changes the Blood into Milk.

Q. What happens further in reſpect of the Milk in Women with Child?

A. In ſuch, the Receptacles of the Chyle being more compreſs'd, and the Chyle driven upwards, the Glandules of the Breaſts, the Paſſages to them, and the lacteal Tubes, are hereby more opened.

Q. Why does the Milk flow more plentifully after the Birth?

A. Becauſe, after the Birth, the Womb does not preſently recover its former Figure; and the Chyle, which us'd to paſs to the Womb for the Nouriſhment of the Fœtus, now, by the Paſſages being cloſed, flows upwards, and the Infant ſucks; and how greatly this conduces to producing Milk, no one will wonder at, who reads, in the *Hiſtory of Phyſick*, of an Inſtance where Milk was produc'd in the Breaſt of a Virgin, only by continued Suction.

Q. When does the Milk ceaſe?

A. When the Infant leaves off ſucking, and the lacteal Tubes are now cloſed, which before were kept open by the Motion of the Chyle towards the Nipples, and then the Paſſages of the Glandules grow narrower, ſo that the ſame Quantity of Chyle cannot paſs thro' them; the free Paſſage which continued towards the Nipple, during the ſucking of the Child, being now cloſed, and new Supplies arriving, which cannot freely enter the ſmall Veſſels of the Glandules, it is compell'd to repair to the Heart with the circulating Blood.

Q. From what other Cauſe does the Milk ceaſe to flow in the Breaſts?

A. When the Nurſe is again with Child.

Q. How does this happen?

A. When the Womb grows ſofter and more porous, on account of the leſſer Preſſure, the Chyle then begins to return to the Fœtus, and withdraws itſelf from the Breaſts, till towards the due Time of Delivery the Womb is again diſtended, and ſufficiently preſſes upon the chyliferous Veſſels: The Mother then conveniently weans the Child; or the Child weans itſelf, becauſe the Milk, from ſome unuſual Mixture, has not its natural Taſte.

CHAP. XI.

Of the Seed.

Q. WHAT are we to premiſe, before we treat of the Seed?

A. We are firſt to obſerve, that the Organs of Generation in Man and Woman are different.

Q. But would it not be better to mention theſe Things in another Place?

A. It will be better to defer it till we treat particularly of this Subject.

Q. What do you remark of the Seed?

A. It is a whitiſh Humour, full of Spirit, form'd in the Teſtes and Paraſtatis, to be further fitted for Generation in the Seminal Veſſels, and the *Vaſa Deferentia.*

Q. Is the Seed generated of the Chyle, or the Blood, or of both?

A. The Seed is the nobler Part of the Chyle.

Q. I deſire you would demonſtrate this.

A. I will do it; the Matter from which the Chyle is made, is carried, with the Blood, directly from the Heart to the Teſticles by the Arteries; the ſame is carried through the minuteſt Glands (only perceivable by a Microſcope) into the tubulous Subſtance of the Teſticles.

Q. How is this confirmed?

A. From the artificial Diviſion and Diſperſion of the Arteries in the Teſticles.

Q. What do you infer from hence?

A. From their Straitneſs, with the winding of the correſponding Veins, and the Multitude of their Valves, it follows, that the Chyle, joined with the Blood, moves with greater Celerity towards the Teſtes, than from them, and ſo the more noble Part of the Chyle more readily paſſes to form the Seed into the tubulous Subſtance of the Teſticles, by the ſmall Arteries and Glands, with which it every where abounds.

Q. What is the tubulous Subſtance of the Teſticles?

A. It is a Collection of ſpermatic Veſſels, knit up with various Folds and Windings, to which Form their Teguments greatly conduce; for, upon taking off the Teguments of one of the Teſticles, and ſtirring it in Water, you will find theſe Veſſels above twenty Ells long: Many Nerves ſurround theſe Teguments, which very much help the Tranſcolation of the Chyle, by forcing the Blood towards the lower Parts, by the Influx of the Spirits, and by ſucceſſively ſtraitening the Cavities of the Veſſels, and then the Blood that is unfit for Seed, paſſing through the Veins and the Lymphatic Veſſels (which are bound up with the Blood Veſſels) and alſo the watery Humour, impregnated with a volatile

Spirit (which accompanies the Chyle, for its more eaſy Tranſcolation) returns to the Heart.

Q. Some believe that the Matter of the Seed is a nervous Juice, that diſtils from the Brain; are you of this Opinion?

A. By no Means; notwithſtanding the Number of Nerves in the Teſticles; nor is their Reaſoning of any Force, that the Loſs of a conſiderable Quantity of Blood does not weaken like the Loſs of a little Seed; nor that the Head achs after Copulation; nor that luſtful Perſons are ſubject to Diſtillations from the Brain to the Spinal Marrow; nor, laſtly, becauſe the Teſticles are white within, and not red.

Q. How do you make good all theſe Aſſertions?

A. To the firſt I anſwer, that this nervous Juice is either the condenſed animal Spirits, or ſome other Humour; but it is contrary to the Nature of a Spirit, which conſiſts of Parts flying from each other, to be condens'd into a ſeminal Humour; and this nervous Juice cannot be any other Humour, becauſe it would ſtop up the inviſible Pores of the Nerves.

Q. What do you reply to the ſecond Objection, from the Number of the Nerves?

A. To this I anſwer, that they are intended to convey the great Quantity of Spirits which are contained in the Seed, and without which the Chyle would not paſs through thoſe innumerable, and extremely ſmall Tubes, which are in the Teſticles, nor would be changed into a prolific Seed, which is perfected by the various Motion of the Spirits, and of its Particles within itſelf.

Q. What do you ſay to the next Objections in the 3d, 4th, and 5th Articles?

A. I ſay, that this may proceed from the Waſte of Animal Spirits; for the Teſticles being emptied, the Nerves that communicate with them are proportionally weakened, and then, by the greater Facility of the Motion towards them, the Spirits flow more abundantly into theſe Nerves than others, and ſo other Parts, and even the Brain itſelf, is robbed; whence it happens that its Fibres are relaxed, and this is the Reaſon that the Vapours of the Brain are more weakly condenſed, and ſent out through the Spine.

Q. What do you ſay to the laſt Article?

A. I ſay, that all the Parts (even from the Confeſſion of thoſe who differ from my Opinion) even the Teſticles themſelves, are nouriſhed by the Chyle, ſince they are all, in ſome Degree, white.

Q. But to the Solution of the firſt Objection it may be reply'd, that the ſmall Fibres of the Nerves are not obſtructed by their own nutritious Juice, although of a groſſer Nature: What do you reply to this?

A. This nutritious Juice is not derived from the Brain, but from the Arteries; nor does it fill the Pores of the Fibres by the Way of their Diameter, but by the Way of their Length, and ſo does not paſs by the Way of the Spirits, and conſequently cannot hinder their Paſſage; and this is the Reaſon that the Fibres of the Nerves grow only in Length.

Q. What do you ſay to thoſe who aſſert, that the Matter of the Seed is a Part of the Blood, and that thoſe who, by uſing Venery too freely, drain the ſpermatic Veſſels, and weaken the Blood, do ſo ſtrain the Way to the Teſticles (though what contributes to this, is the ſtraiter Deſcent of the Arteries from the Trunck of the Aortæ to the Teſticles, than to the Loins) that, deriving the Blood from the Loins, they fall into a Tabes Dorſalis, and emit Blood, inſtead of Seed; and, tho' they are weaker, yet are more inclined to Venery than the more moderate; but their Seed is leſs efficacious than that of others, who are not guilty of this Exceſs.

A. I will tell you; that the Matter of the Seed is the moſt labour'd and ſpirituous Part of the Chyle, greatly impregnated with a volatile Salt, by which we can truly explain all the Phænomena and Accidents of the Seed, which cannot be refuted by any Arguments; and that the Chyle, which abounds in the Blood more than all the other Humours (excepting the Serum) is the Matter principally neceſſary to true Nutrition, Accretion, the Generation of Blood, and the Production of Spirits, &c. Although any other Humour almoſt, the Cavity of the Womb, becauſe at this Time it makes itſelf a Paſſage through the hypogaſtrick Veſſels, as being beſt ſuited to it.

Q. Do the Menſes flow in Women that give Suck?

A. Very ſeldom, or never; partly for the aforeſaid Reaſons, and partly becauſe the Ferment of the Womb paſſes away with the Milk.

Q. Does the menſtruous Blood differ from the maternal Blood in pregnant Women?

A. It does not; neither does it nouriſh the Fœtus, nor the Placenta, but dilates the ſpongious Subſtance of the Womb, by which it becomes ſofter and lighter with the growing Fœtus.

CHAP. XIII.

Of the Saliva.

Q. WHAT is the Saliva?

A. The Saliva is a ſerous Humour, diſtilling from the ſalival Ducts.

Q. Give me a Deſcription of theſe ſalival Ducts.

A. Theſe Ducts are Veſſels *ſui Generis*: There are four very remarkable; two Superior,

rior, which take their Riſe from the Parotidæ, by various Branches, and paſſing by the Cheeks, under the Skin, run, with a viſible Orifice, into the Mouth; and alſo two lower, that, in the ſame Manner, proceed from the maxillary Glands, by ſeveral ſmall Branches, the biggeſt of which, before it meets the common Conduit, is carried under the digaſtric, maxillar Muſcle: Both the Inferior, under the Tip of the Tongue, near the Inciſores of the Lower-Jaw, amongſt certain *Papillæ* there ſituated. The Matter of the Saliva is carried to theſe Glandules by the Arteries: It further iſſues out of almoſt all Parts of the Mouth, as from the Glandulæ Sublinguales, from the Tonſillæ, which laſt have two ſmall white Veſicles adjoining to them, that receive the Serum from the Glands, and empty it into the Mouth; alſo each hath a large, oval Sinus, opening into the Mouth, and containing two greater, and two leſſer Sinus's in its Edges, with other ſmall Glands, every one of which hath, in the Middle, a ſmall perforated Sinus.

Q. What is the Uſe of the Saliva?

A. It quenches Thirſt, by moiſtening the Lips, the Tongue, the Mouth, the Palate, the Oeſophagus, and the Aſpera Arteria; it aſſiſts in ſwallowing our Food; it gives a Beginning to Chylification in the Mouth, for it partakes of the Nature of the acid Humour of the Stomach; *i. e.* it hath certain ſaline, acid Particles, mingled with the Serum; ſo that a

Mouthful of Bread, chew'd and expoſed to the Sun, will yield a Sort of Chyle; and the ſmall Particles of Fleſh and Bread, that ſtick between the Teeth, grow white, but in a longer Time; ſo that the Saliva alone is not ſufficient for Chylification.

The Saliva extracts the Taſte from the Aliments, for without it the Taſte fails.

Q. Does not the Saliva, when ſwallowed, return to the Heart?

A. It returns continually to the Heart, thro' the lacteal Veſſels, either with, or without the Chyle.

Q. In what Caſe is the Saliva excreted more plentifully than uſual?

A. When we ſmell, or ſee, any Thing very grateful, or earneſtly long for any Thing, the Saliva flows more copiouſly into the Mouth, becauſe the Nerves of the Par Vagum do not only ſupply the ſalival Ducts and Glands, but ſend alſo ſome Branches to the olfactory and optic Nerves; whence the ſtronger Influx of Spirits into theſe Nerves, encreaſes that of the Par Vagum, and thereby further contracting their Fibres, the ſalival Glands are ſtraitened, and eject the Saliva.

Q. What is the Reaſon, that a Ball of Lead, roll'd in the Mouth, allays Thirſt?

A. A Leaden Ball, roll'd about the Mouth, moves the Tongue, ſtraitens the Ducts, and ſo expreſſes the Saliva.

Q. Why does the Saliva flow in greater Quantity upon Vomiting?

A. Becauſe the Stomach participates with the maxillar Glands of the Branches of the Nerves of the 6th Pair, and continues the Interiors upon its Tunic, with that which is in the Jaws and Palate, and, in this Caſe, they are contracted by Sympathy, and emit their Humour: For the ſame Cauſe, if the Membrane at the Top of the Æſophagus is irritated, it excites Vomiting.

CHAP. XIV.

Of the Pancreatic Juice.

Q. WHAT is the pancreatic Juice?

A. The pancreatic Juice, is a ſerous Humour, which flows from the Pancreas into the Duodenum.

Q. What is the Pancreas, and its Duct?

A. The Pancreas, is a certain Subſtance, conſiſting of many Glands, and Branches of Veſſels and Nerves, collected together in a common Membrane, ſituated tranſverſely under the Stomach, with one End extended to the Gall, and the other End faſtened to the Duodenum, and deſcending a little way with it.

The Pancreas hath an excretory Veſſel proper to itſelf, conſiſting of very many Branches, all of which are joined to the Glands of the Pancreas: It is called, in common, the pancreatic Duct, and is inſerted at the ſame Place with the biliary Duct, obliquely into the Duodenum, or the Beginning of the Jejunum, making, at its Inſertion, a kind of Tubercle, by which the Chyle may flow, that it may not hinder the Paſſage of the Gall, or pancreatic Juice.

Q. How is the pancreatic Juice ſeparated from the Blood, and where is it carried?

A. The Blood, flowing through the Arteries, and ſtriking on the Glands of the Pancreas, draws off the pancreatic Juice, through the Pores thereof, into the ſmall Branches of that Duct.

The pancreatic Juice diſtils out of theſe Branches into the greater Duct, and thence into the Duodenum, but in very ſmall Quantities, as is manifeſt, from its being never full in a live Dog, and, ſcarcely, when it is cloſed up by a Ligature.

Q. What Taſte has the pancreatic Juice?

A. It hath a weak acid Taſte, from its acid, ſaline Particles, diluted with Serum, which, being mix'd with the Gall, ſtruggles with it, and raiſes a Fermentation.

Q. What is the Uſe of the pancreatic Juice?

A. It further elaborates the Chyle in the Inteſtines, in Conjunction with the Gall, as a new Ferment: Beſides, it tempers the Gall, that it may not injure the Bowels, and dilutes the Chyle. —— Read *de Graaf de Succ. Pancr.*

CHAP. XV.

Of the Natural Melancholy Humour.

Q. WHAT is the natural melancholy Humour?

A. It is ſo earthy a Part of the Humours, that it can afford no Nouriſhment.

Q. Is there ſuch a Liquor found any where in our Bodies?

A. It ſeems to be no where ſeparated in our Bodies, unleſs you will allow the ſuccenturiate Kidnies, or renal Glands, to be its Receptacle.

Q. In what State are thoſe Glands in Children?

A. They are larger than in grown Perſons.

Q. What is the Opinion of ſome Perſons, concerning the renal Glands?

A. Some think that the melancholy Humour, or *Bilis-Atra*, lodges in the renal Glands (which is falſe) for it is a Humour evidently contrary to Nature, nor is it found in the Body in its natural State, nor does it any way contribute to the Animal Oeconomy, ſo that it cannot be aſſigned to any particular Place.

Q. What do others ſay of the Situation of the melancholy Humour?

A. Others ſay, that an acid and black Humour is generated, out of the Blood, in the Spleen: But this Humour is not in the Spleen, nor does it paſs from thence immediately into the Stomach.

Q. What is the Subſtance of the Spleen?

A. The Subſtance of the Spleen is compos'd of innumerable Veſicles, or little membranous Cells.

Q. What are theſe Cells like?

A. They are like the Cells in a Honeycomb, knit together in a wonderful Manner: A Branch of the cæliac Artery, by a ſingular Contrivance, enters the Spleen, which, by means of the Glands within, continually depoſites its Humour into the Cavity of the Veſicles, through its excretory Duct.

The ingenious Dr. *Sylvius* thinks, that the Blood in the Spleen receives ſomething of an extraordinary Perfection: For,

1. The Blood that is ſeparated in the Spleen, does not remain there, but is protruded by a circular Motion.

2. By the Influx of Spirits into the nervous Fibres, that ſurround every Cell, the groſſer and more earthy Matter is expelled, by the

ſplenic Vein, into the Vena Porta, and Vena Cava.

3. It is thus further elaborated, that, being rendered thin and aqueous, it might be forc'd to paſs through the lymphatic Veſſels into the Cyſtern, for the more eaſy Aſcent of the Chyle through the thoracic Duct.

CHAP. XVI.

Of the Serum of the Blood.

Q. WHAT is the Serum of the Blood? *A.* The Serum of the Blood is a Humour, conſiſting chiefly of Water.

Q. Why is it ſaid to be chiefly of Water?

A. Becauſe, being ſeparated, it is found to contain other Particles, *v. g.* Salt, Acid, and others.

Q. What Names is the Serum known by, according as it differs in ſeveral Parts?

A. According to its Variation, it is called the Lymph, or the Saliva, or the Humour of the Pericardium, the digeſtive Juice, *&c.*

Q. How is it called, when it is mixed with the Blood?

A. It is then call'd, the Serum of the Blood.

Q. Of what Uſe is the Serum?

A. It is the Vehicle of the Blood, and other Humours, to the inmoſt Receſſes of the Parts to be nouriſhed, as it firſt enters, expands, and relaxes the Pores.

Q. What Proportion does the Serum hold to the Blood?

A. It is in large Quantities, on Account of the great Proportion of Liquors which we daily drank.

CHAP. XVII.

Of the Humour of the Pericardium.

Q. WHAT is the Humour of the Pericardium?

A. It is a ſerous Humour, contained in the Pericardium.

Q. What is the Matter of this Humour?

A. Its Matter is the Serum, having ſome ſmall Particles of the Blood mingled with it, and is therefore like Water, in which Fleſh hath been waſhed.

Q. Whence comes this Humour?

A. Some ſay it is a Vapour, that is exhaled from the Heart, and condenſed by the Pericardium.

Q. What is the Uſe of this Humour?

A. To facilitate the Motion of the Heart, as all Things move eaſier in a Fluid like Water;

ter; and that the Heart ſhould not ſtrike againſt the neighbouring Parts with too much Force and Weight.

Q. What further Uſe has it?

A. To moiſten and cool the Heart, leſt, by its continual Motion, it ſhould be burnt and dry'd up.

Obſerve, That as the Humour of the Pericardium is conſtantly renewed, ſo it is continually evaporating through the Pericardium.

CHAP. XVIII.

Of the Lympha.

Q. WHAT is the Lympha?

A. It is a ſerous Humour, entirely limpid, contained in the lymphatic Veſſels?

Q. How do you deſcribe them?

A. They are extremely thin and pellucid Veſſels; they ariſe almoſt from all Parts of the Body, and ſuck up their Liquor.

Q. What is there to be particularly obſerved in the lymphatic Veſſels?

A. Where they paſs moſt ſafely, they twine about the greater Veins, like Ivy, but do not ſuck the Serum out of them, of which the veinous Blood has none to ſpare.

Q. What is there to be learned from the Formation of their Valves, from the Ligatures and Inflation of theſe Veſſels?

A. That the lymphatic Veſſels, that are beneath the Diaphragm, principally end in the Ciſtern, or common Receptacle of the Chyle.

Q. What further?

A. The other lymphatic Veſſels, that are above the Diaphragm, are inſerted into the Pericardium, and into the upper Part of the thoracic Duct, at the Junction of the jugular with the axillar Vein.

Q. What do they there?

A. There they convey their Liquor, for at this Place there is a very perfect Valve, and here they are ſo ſmall, as to eſcape the Sight.

Q. When are theſe Veſſels to be ſeen?

A. When the Lymph is tinged with a ſlight red or yellow Colour; and after the Death of the Animal, when the Veſſels are more diſtended.

Q. Does the Lymph differ from the nervous Fluid?

A. Not at all.

Q. What is the Lymph, and how generated?

A. The Lymph is the thinneſt Part of the Serum, ſtrained off, which does not flow with any Force, but, by a Sort of Tranſudation, creeps in the lymphatic Veſſels, that have a great Number of Valves, to aſſiſt this weak Motion.

Q. To what Purpoſe does the Lymph ſerve?

A. As I ſaid before, it dilutes the Chyle in the Cyſtern, that it may more eaſily aſcend through the thoracic Duct, and thin the Blood in the jugular Vein, that it may more eaſily rarify in the Heart, and replenish the Humour of the Pericardium.

CHAP. XIX.

Of the Inteſtinal Mucus.

Q. WHAT is the inteſtinal Mucus?

A. It is a glutinous Matter, ſpread over the Inſide of the Bowels.

Q. Whence proceeds this Matter?

A. It is brought, by the Arteries, to the glandulous Coat of the Bowels, and there ſeparated from the Blood, and paſſes through, by Filtration, into the Cavity of the Bowels.

Q. What Benefit is it of?

A. It defends the nervous Tunic of the Bowels againſt the Acrimony and Aſperity of the Gall, of the Food, and helps Chylification.

Q. What is obſerved of this Mucus, in Medicines that purge vehemently?

A. In this Caſe the Mucus is thinned, and entirely carried off, with great Injury.

Q. What follows?

A. Sharp Pains, and Griping of the Bowels; and, at laſt, a Dyſentery, or Bloody Flux; or, at leaſt, the Excrements ting'd with Blood.

CHAP. XX.

Of the Sweat.

Q. WHAT is Sweat?

A. Sweat is a ſerous Humour, like Water, iſſuing through the Pores of the Skin, or the ſudorific Tubes.

Q. Give me a Deſcription of the ſudorific Tubes.

A. They are very ſmall Tubes in the Pores of the Skin, that run out to the Cuticula, having each its proper Glandule, by which the Serum, that is, the Matter of the Sweat, is ſeparated, as may be ſeen by a Microſcope.

Q. What makes the Sweat ſalt?

A. The ſalt Particles contain'd in the Serum.

Q. What is the Cauſe of Sweat?

A. It is Heat, either of the Sun, or Fire, or acquir'd from Exerciſe, our Cloathing, *&c.* by which the Blood is more ſtirr'd and diffuſed through the various Parts of the Body:

The Mouths of the Arteries, near the Skin, are more open'd, and the more flexible ſerous Particles flow through them, and pour forth any other Moiſture, if any is conceal'd in the Skin, and penetrate the Pores of the Skin; but becauſe they do not paſs with ſufficient Freedom and Celerity, many of their ſmall Particles, being united, are condens'd into little Drops.

Q. Do not a moderate Opening of the Pores, and the Abundance of Serum, greatly aſſiſt Sweating?

A. They do; but the leaſt Opening of the Pores, becauſe it does not ſtop the Paſſage of the Serum, conduces more to inſenſible Perſpiration. A too great Conſtriction of the Pores, impedes the Paſſage of the Serum, and encreaſes the Quantity; hence Sweat, ariſing from Exerciſe in Winter, is more copious than in Summer.

Q. Why does not the Blood paſs off with the Sweat?

A. Commonly the Blood does not paſs off with the Sweat, becauſe it is too ramous, but ſometimes a few of the ſmaller Particles of the Blood are ſeen to accompany it, and then the Sweat tinges our Linnen, chiefly under the Arm-pits.

CHAP. XXI.

Of the Urine.

Q. WHAT is Urine?

A. Urine is a ſerous Humour, ſtrain'd off through the Kidnies.

Q. Whence comes the Urine?

A. It comes with the Blood (which it dilutes) to the Kidnies, by the renal Arteries: This Humour is ſeparated from the Blood, as ſuperfluous, and is continually running off, as a Part of the Blood is continually flowing to the Kidnies, for the Sake of Nouriſhment.

Q. Inform me how the Urine is ſeparated from the Blood in the Kidnies, and deſcribe their Structure briefly.

A. It is performed in the following Manner: The Blood, mix'd with the Serum, flows upon the exterior, glandulous Subſtance of the Kidnies, out of the renal Arteries, divided into various Branches; and, compell'd by this Power, certain thinner Particles are inſtantly ſeparated by its Pores, or minute Canals, into a great Number of larger Tubes, which ariſe from the minute Canals, and which Tubes make chiefly the inner Subſtance of the Kidnies; and from theſe, ending in eight or nine Papillar, or Caruncles, they paſs into the Pelvis, and thence into the Ureters and Bladder.

Q. What becomes of the reſt of the Serum?

A. The reſt, which comes to the Kidnies, and was unfit to paſs through them, returns partly to the Vena Cava, through the emulgent Veins, and remains in the Blood as before.

Q. Why were theſe Parts thus formed?

A. They were thus formed, that there might be Time for the Separation of the Serum; thus the outward Tubes of the Kidnies were made larger than the interior. *Vid. Malpig. de renibus.*

Q. Is the Urine made of the Serum only?

A. The Gall gives it the red and yellow Tincture; and alſo, the ſulphurous, ſaline, fix'd, earthly, or tartareous Particles, *&c.* which, by waſhing the Parts, it carries along with it.

Q. Are there any other particular Ways, by which what we drink is ſooner excreted.

A. Some ſay that, beſide the Way of the renal Arteries, already mentioned, there is a nearer Way from the Stomach and Bowels to the Bladder; and they ſupport their Opinion with ſome probable Reaſons, but they do not amount to a Demonſtration, for no ſuch Paſſages do as yet appear to Anatomiſts.

Q. In what Time, and by what Way, is the Secretion of the Urine perform'd?

A. Why the Urine paſſes ſo ſoon after drinking Beer, or any other Liquor, *viz. Tunbridge*, or *Spaw-Water*, may be underſtood, without ſuppoſing any ſuch Paſſages; for a large Draught of Liquor immediately increaſes the Flux of the Serum to the Kidnies, partly becauſe flowing ſoon out of the Stomach into the Bowels, and thence into the lacteal Veſſels, it drives forward the Chyle, previouſly exiſting in them, and in the thoracic Duct, and ſo the Serum is augmented in the Maſs of Blood.

Q. Proceed.

A. Becauſe a large Draught of Liquor, by diſtending the Stomach and Bowels, preſſes upon the Blood Veſſels of the Bowels of the lower Belly, and ſo cauſes the Blood, with its Serum, to abound in the other Veſſels; ſo the Maſs of Blood is compelled to a free Paſſage, by which it may, in a better Manner, flow from the redundant Blood, and thus ſeparates the Serum from itſelf, which, by Reaſon of its Thinneſs, very eaſily paſſes through the Kidnies; the Cauſe therefore that we diſcharge Urine preſently after drinking, is not the Urine of the Liquor we drank immediately before, but the Matter which exiſted in the ſaid Paſſages is thruſt forward by it.

Q. Have you any further Arguments?

A. Further, I ſay, the Matter we drink paſſes through the common Paſſages ſoon enough, and the Blood, very probably, circulates entirely, in a ſound Perſon, in a Quarter of an Hour; ſo it is no Wonder, if we diſcharge Urine ſo ſoon after drinking.

Q. What do you think is the Cauſe that Aſparagus and Madder give a Scent and Colour to the Urine?

A. They do not prove any particular Paſſages, theſe Things being of an opening Nature. Vid. *Charlton de Lithiaſi*; read *Anatomiam D. D. Bidloo* and *Cooper*. But let no body think, I would entirely reject any ſuch Paſſages, ſince it is probable there may be ſuch, and I hope they may be diſcovered by the Induſtry of the modern Anatomiſts: What I have ſaid, may ſuffice while theſe Paſſages are not diſcovered; as in treating of the Milk, I have alſo ſhewn the Probability of its coming to the Breaſts by the Arteries.

Q. How long is the Urine retained in the Bladder?

A. Until the Weight, or the Acrimony, ſtimulates it.

Q. How is the Urine voided?

A. By the Contraction of the Muſcles of the lower Belly, and of the Fibres of the Bladder, whilſt upon their Irritation they receive a greater Influx of Spirits.

Q. What is the Reaſon that our Urine does not run off whilſt we ſleep, or without our Perception?

A. There is a remarkable annular, or ſphincter Muſcle, at the Neck of the Bladder, whence,

OF
PHISIOLOGY:
OR, THE
Nature and Principles of PHYSICK.

PART II.

CHAP. I.

Of the Spirits, and the different Species of them in general.

Queſtion.

WHAT are the Spirits?

A. The Spirits, are extreme fine and active Parts of the Body.

Q. Of what Matter do they conſiſt?

A. They conſiſt of the fineſt Parts of the Blood; that is, the more ſulphurous, and, as it were, igneous Part, which may be generated from all Parts of the Chyle, of whatſoever Figure, Magnitude and Solidity, *&c.* ſo that they are fit to be divided and attenuated.

Q. Do not you prove, by tying a Nerve, that there are Spirits in the human Body?

A. The Nerve of any Part being tied, or cut off, ſo that the Spirits cannot come to that Part, inſtantly the Motion and Feeling of that Part is loſt.

Q. How do you divide the Spirits?

A. I know of none but the Animal, ſo called, becauſe by them we perform the animal Functions.

Q. How do you diſtinguiſh them under this Claſs?

A. They are two-fold; thoſe which ſerve for Perception, and thoſe which ſerve for Motion, according to that Part of the Nerve into which they flow (as into the medullary Part for Motion, or the membranous Part for Senſe) it is called, the vital Spirit, as it performs thoſe Actions, commonly call'd Vital; and the natural Spirit, as it performs natural Actions; and ſo of the reſt, and that without any ſpecifical Diſtinction.

Q. Do you aſſert, therefore, that the animal Spirits are the only Spirits?

A. I do; becauſe their Eſſence conſiſts in a quick Motion of certain fine Particles, ſeparated from the Blood; ſo that the vital Spirit is not truly a Spirit, but the fineſt Parts of the Blood, and therefore of its Eſſence, as it cannot be ſeparated from it: In the ſame Manner as Wine, when the Spirit is extracted, is no longer call'd Wine. But as this may be properly call'd ſpirituous, from the Spirit it contains, ſo the Blood may be call'd ſpirituous, and living, from the vital Spirit: With this further Conſideration, that the vital Action, from which it is call'd a vital Spirit, may be better comprehended under the natural Action, and ſo the Diviſion of Spirits into Three cannot ſubſiſt.

Q. How are the animal Spirits generated?

A. The animal Spirits are generated in the Brain only, by Separation from the Blood, which, being impregnated with the Matter of the Spirits, is driven out of the Left-Ventricle of the Heart into the ſmall Branches of the vertebral, carotid Arteries, which it paſſes through, and from which it enters the Cortical, or external Subſtance of the Cerebrum and Cerebellum, which is ſofter than the reſt, which conſiſts of an infinite Number of Veins and Arteries, taking their Riſe from the carotid and cervical Arteries, turning and winding in various Shapes.

The Blood receiving this Impulſe, from the Blood behind preſſing on the Blood before, the finer Parts thereof, by a peculiar Form being adapted to the fine Paſſages, does ſoon paſs through the ſeveral Circumvolutions of the Arteries, into the fine Tubes of the Cerebrum and Cerebellum, becauſe there they have a freer Motion.

The Remainder, that is too groſs, is carried through the Veins (and, perhaps, by the lymphatic Veſſels that inoſculate with the ſaid Tubes of the Arteries) into the cervical and and carotid Veins.

Q. How many Ways do theſe animal Spirits flow out of the Brain?

A. Four different Ways: Firſt, by the Power, or Command of the Soul; for, I think, there is ſuch a Law eſtabliſhed between the Soul and the animal Spirits, that, upon its Volition, or Will, they inſtantly flow, according to its Direction, without being protruded by it (which cannot be done by a Spirit.)

Secondly, the Spirits are expelled by Means of the Blood thrown up to the Cerebrum and Cerebellum, by the Contraction of the Heart, new Spirits being immediately ſeparated from it, which puſh on the animal Spirits, before exiſting in the Brain, out of their narrow Limits, by the entire Diaſtole of the Brain, and partly alſo by the Syſtole, and by the continual Encreaſe of Spirits, by which the former are driven forward by the latter; and this Motion is indeterminate, but generally ſlow, which produces the equal and conſtant tonic Tenſion of all the Muſcles. For it appears from hence, why at every Pulſe there is a

Concuſſion of the whole Body (to the End that this might be done, in ſome Meaſure, by the conſtant Propulſion of the Blood into the Arteries) it alſo appears why, when one Arm is cut off, the other grows ſtronger; and why, when one of the two antagoniſt Muſcles grows parylitic, the other is contracted, as in a Convulſion, and draws the Part with it with which it is contracted; becauſe then the ſaid Parts are inflated and extended by a greater Flux of Spirits.

Thirdly, the Spirits flow out of the Brain when ſome Part is irritated; for then, by the Motion of the nervous Fibres, the Pores in the Brain are opened, and ſo the Spirits flow immediately towards the Part irritated.

It is thus in Reſpiration, in the Motion of the Heart, in the periſtaltic Motion, *&c.* in all which, there happens a certain natural Irritation. They flow out likewiſe when any Member, upon being tickled, is inſtantly contracted; but this is a preternatural Irritation.

But, on Account of ſuch an Opening of the Pores of the Brain, this Efflux of the Spirits is ſuch, that it not only happens in the Nerves of the Part irritated, but alſo in the Nerves near adjoining; and hence we are to derive the principal Cauſe of the Sympathy which is found between various Parts, *v. g.* between the Kidnies and Stomach, as the former being irritated, cauſes Vomiting; and between the

Colon and the Stomach, between which there is the ſame Sympathy.

And, Fourthly, they flow variouſly; that is, quicker, or ſlower, with a conſtant, equable, or an interrupted Courſe, *&c.* as occaſioned by the various Paſſions of the Mind, ſuch as Sorrow, Joy, Anger, Fear, *&c.*

The Soul itſelf not knowing the Manner of ſuch an Efflux of the Spirits, although it is very ſenſible that it rejoices, is ſad, *&c.* But why the animal Spirits are thus mov'd by Reaſon of the Paſſions, cannot be otherwiſe explain'd, than that there is a Law inſtituted by the Author of Nature, between the Soul and the Spirits, by which they muſt be mov'd by a certain Cogitation, or Affection of the Soul.

Q. Do not the Spirits that proceed from the Cerebellum, ſerve for involuntary Actions?

A. They proceed chiefly from thence, as appears by the Striæ Medulloſæ that proceeds from it to the Nerves of the Par Vagum; and this gives us the Reaſon why, in an Apoplexy, the Pulſe and Reſpiration do not entirely ceaſe, being partly effected by theſe Nerves.

Q. Is not this Motion of the Spirits improperly compar'd to the Exploſion of Gunpowder?

A. It is ſo; the Spirits, in their natural State, being about to move, are not fir'd in the Brain like Gunpowder, or exploded out of it; for in this Caſe our Motions could not be reſtrained at the Command of the Soul.

Q. Whence ariſes the Pain from Wearineſs, and what is Wearineſs itſelf?

A. Some Pain is felt in the Wearineſs of any Member, which does not proceed ſo much from the waſting of the animal Spirits, as from the Solution of the Continuity of the Fibres, through long Tenſion: But Wearineſs itſelf is partly occaſioned by the Waſting of the Spirits, and partly by the greater Flux of Blood to the weakened Part; ſo that, by theſe Cauſes, the Spirits are not plentifully enough admitted.

CHAP. II.

Of the Parts in General.

Q. WHAT is a Part in General?

A. It is what compleats the Whole.

Q. Is not a Part divided various Ways in Phyſick?

A. It is; and firſt into Fluids and Solids.

Q. What are the fluid Parts?

A. The fluid Parts are the Blood and Spirits, of which we treated before, and they are in continual Motion.

Q. What are the ſolid Parts?

A. The ſolid Parts are all thoſe Parts that are diſtinct from thoſe already mentioned, as the Skin, Fleſh, Bones, Nerves, Membranes, Arteries, Veins, Hair, Nails, *&c.* of which we ſhall treat in this Chapter.

Q. What is a ſolid Part, ſpeaking more ſtrictly?

A. A ſolid Part, is a ſolid Body joining to the Whole, deſtined for the Uſe of the Body.

Q. Why is it ſaid to be deſtined for the Uſe of the Body?

A. To exclude Tumors, Warts, *&c.* which, though adhering to the Body, are nevertheleſs of no Uſe to it, and therefore are not Parts of it.

Q. What is the ſecond Diviſion of a Part?

A. The ſecond Diviſion, is into organical, and unorganical Parts.

Q. Which are organical Parts?

A. The organical Parts, are thoſe which require a peculiar Formation for performing ſome Action proper to itſelf, as the Eye, the Ear, the Noſe, *&c.*

Q. What are the Parts unorganical?

A. They are ſuch as do not require a peculiar Formation, as Fleſh, a Membrane.

Q. What is the third Diviſion of Parts?

A. The third Diviſion, is into principal and aſſiſtant Parts.

Q. What is a principal Part?

A. A principal Part, is that, without which, the Body cannot ſubſiſt, being abſolutely neceſſary to Life.

Q. Which are the animal Parts?

A. The animal Parts are the animal Spirits, the Brain, the ſpinal Marrow.

Q. Which are the natural Parts?

A. They are, the Heart, Lungs, Stomach, Bowels, Liver, Gall, Genital Parts.

Q. What is a ſimilar Part?

A. Thoſe Parts which appear all of the ſame Subſtance at the firſt Sight.

Q. Why is it ſaid at firſt Sight?

A. Otherwiſe, many that are called ſimilar, would not prove ſuch; for there are very few, in which you will not find ſome Difference. Theſe following are generally taken for ſimilar Parts; a Bone, a Cartilege, a Tendon, the Glands, the Fat, a Nerve, an Artery, a Vein, the lymphatic Veſſels, the lacteal Veſſels.

Q. How are the Parts divided by the Schools?

A. Into Spermatic, Sanguineous, and Mix'd.

Q. Which are call'd Spermatic?

A. Theſe are called Spermatic (as being ſimilar) a Bone, a Cartilage, the Hair, the Nails, *&c.*

Q. Which are called Sanguineous?

A. Four Sorts of Fleſh; as, firſt, of the Muſcles; ſecond, the Fleſh of the Bowels; third, the Fleſh peculiar to any membranous Part, as that of the Stomach, of the Inteſtines, of the Bladder, and of the Womb; fourth, the Fleſh that forms the Glands.

Q. What is a mix'd Part?

A. The Skin is taken for a mix'd Part, becauſe this ſeems neceſſary to make an exact Organ of Feeling.

OBSERVATION.

I much doubt whether all theſe Parts are ſuch, as that ſome of them are compounded only of the Seed, and ſome preciſely of equal Parts of both: Yet, I do not deny, that ſome are form'd, in part, of the Seed; for while, by the Growth of the Ovum in the Womb, which is here underſtood for the Seed, the Blood and Spirits begin to exiſt, and, in all Probability, by the drying up of the Sides of their Ducts, out of it they form the Nerves, Arteries, Veins, and certain other Parts; for before the Blood, it was a Veſicle, or ſmall Membrane, of a red, ſalient Point, in our firſt Formation. Neither are we oblig'd to deny the ſpermatic Parts, becauſe every Thing is nouriſhed with a ſimilar Subſtance, for all Parts of the Body are nouriſhed with Blood, becauſe the moſt we can conclude from thence is, that we all uſe to admit thoſe Particles of the Blood into our Pores, which are moſt agreeable and ſimilar to our Natures, or change them, in ſome Meaſure, with our Heat and Spirits, before we are nouriſhed by them. All the ſolid Parts, which are red, receive this

Tincture from the Blood; for they are, in themſelves, white, as appears by waſhing, or ſteeping them in Water, by which they looſe their Redneſs: And this is the Reaſon that, in dropſical and cachectical Perſons, in whom the Maſs of Blood is ſcarcely redder than the Water in which Fleſh has been waſh'd, the Liver, and other Parts, are ſo white.

CHAP. III.

Of the Kinds of natural Action; and firſt, of Hunger and Thirſt.

Q. WHAT is Hunger?

A. Hunger is a painful Senſation, or Vellication, in the Stomach, by which we are led to deſire ſomething ſolid to remove it.

OBSERVATION.

Hunger is therefore the Perception of the Vellication, and not the Appetite itſelf, which rather follows it; for we may ſuffer Hunger, and not deſire Food, as in faſting voluntarily.

Q. Why is Hunger greater in Winter, than in Summer?

A. Becauſe the Ferment of the Stomach is ſharper, and the Tranſpiration leſs.

Q. What is the Cauſe of Hunger?

A. It is an Acid; which is prov'd, becauſe Acids encreaſe the Appetite, and reſtore it, when loſt; and thoſe Things take it away, that deſtroy, or temper Acids; *v. g.* Oc. Cancro. C. C. calcinat, Pearls, fat Subſtances, Spirits of Wine, *&c.*

Q. What is Thirſt?

A. It is an uneaſy Senſation, or Vellication, in the Mouth and Jaws, by reaſon of which, we are determined to deſire ſomething liquid, to remove it.

Q. What is the Cauſe of Thirſt?

A. It is Dryneſs; a ſalt Humour, or Vapour. Dryneſs, of itſelf, does not occaſion Thirſt, becauſe it is only the Abſence of Moiſture; but for as much as through it the Fibres of the parched Oeſophagus touch each other, and are affected in their Motion, with an uneaſy Senſation: For it is cauſed by the Motion of the nervous Fibres propagated to the Brain, and the Seat of the Soul.

Q. Does not Thirſt affect the Soul more than Hunger?

A. We find, by Experience, that Thirſt is a moſt grievous Pain, and not ſo eaſy to be ſuſtained as Hunger; becauſe the Abſence of Moiſture in the Blood, deſtroys the natural Functions, and the Blood loſes its Heat: And then the Separation of the Spirits, and other Humours from the Blood, and their Return to it, is injured: Hence all the Powers languiſh, and Death is the Conſequence of a greater Exſiccation of the Blood.

I ſhould now treat of Chylification (but as I have treated of it under the Chapter of Humour) I ſhall only add two or three Things concerning it, before I ſpeak of Sanguification.

In the firſt Place, I am of Opinion, that Digeſtion is better performed at Night, when we ſleep, than in the Day, when we are awake, if we take an equal Quantity of Food, and other Things equally conſider'd: For as in Sleep the Blood and Spirits are not ſo much carried towards the outward Parts of the Body, ſo the Stomach has more Acid and Heat, is more ſtrongly contracted, and better digeſts the Food. Hence it follows, that the Supper ſhould be the beſt Meal, contrary to the modern Cuſtom. Nor does it ſignify, that the Time between Dinner, and the next Supper, is leſs than between Supper, and the next Dinner; becauſe it is certain, that what we eat at a plentiful Dinner, is often not digeſted before Supper, and ſo the Stomach is charged with a double Burthen.

Beſides, this does not prove that Chylification is better performed in waking, than ſleeping, but, at moſt, the quicker Paſſage of the Chyle out of the Stomach.

Q. Why do ſome Perſons feel a Coldneſs and Shivering preſently after eating?

A. Becauſe our Drink is cold, and the numerous Nerves of the Stomach are more agitated by the Coldneſs of certain Kinds of Food, and ſo, by the Motion of the Fibres, the animal Spirits are more agitated, and flow with more than uſual Force into the Muſcles of the Body: But this does not happen becauſe the Coldneſs is communicated to the Stomach, and the Blood thereof, and then to the other Parts, even to the Heart, by ſucceſſive Motion, for ſome Perſons ſhiver immediately upon taking any Thing cold; ſo that there is not Time enough for ſuch a ſucceſſive Communication.

Neither is this Chillineſs, or Shivering, occaſioned becauſe, at the Time of eating (according to the vulgar Opinion) all the Heat retires to the Stomach for Digeſtion, or Chylification, and forſakes the other Parts; for if this was the Cauſe of this Chillineſs, why does it not laſt longer? For Digeſtion is not perform'd in ſo ſhort a Time. Cold is the Cauſe of it; therefore, neither in Power or Action, can warm Things cauſe a Chillineſs.

OBSERVATION II.

Thoſe Things which are grateful to the Taſte, make the beſt Chyle, becauſe ſuch Things are more pleaſing to the Stomach; whence it digeſts them with more Force, and receives a greater Flow of Spirits.

CHAP.

CHAP. IV.

Of Sanguification.

Q. WHAT is Sanguification?

A. It is the Change of Chyle into Blood.

Q. Is not this performed in the Liver?

A. It is performed in the whole Body; but more particularly in the Heart, in its Left Ventricle, in which the Particles of the Chyle are greatly agitated and comminuted with thoſe of the Blood; and, being wrought together, are render'd more thin and flexible; and at length grow red by a different Reflection of the Light; whence it is no Wonder that congeal'd Blood makes a more ſolid Maſs than the Chyle, tho' its Particles are thinner, becauſe they are alſo more flexible, ramoſe, and ready to unite with each other, than the Chyle, which is made by a groſſer Diviſion of its Parts by the Ferment of the Stomach.

Q. What is the Cauſe of Sanguification?

A. It is a Heat, or a natural eſſential Fire, which remaining in the Heart, from the previous Fermentation of the Blood, immediately inſinuates itſelf into the Pores of the Blood that fall into the Heart, mix'd with the Chyle, in the Paſſage of which, while it meets ſome Particles heterogeneous to it, it is more collected into their Pores, that it may fill them, and ſo, by fermenting and variouſly agitating the Particles of the Chyle among themſelves, and with the Blood in the Heart and Arteries, it, by Degrees, makes them finer, more flexible, and diſpoſes them to Redneſs.

Q. How is Sanguification perform'd, in general through the Body?

A. It is perform'd in the Veins and Arteries of the whole Body, to which the Blood alſo carries the Fire out of the Heart; whence it is probable, that its thinner Particles, by that Motion of Rarefaction which they have, beſides that of Circulation, are projected more outwards, and to the Sides of the Veſſels; but that the groſſer and leſs moveable, are detained more in the Middle; and thence it is, that the thinner Part of the Blood only is drawn off in Venæ Section, if the Orifice is ſmall.

Q. What is the Cauſe of the Blood's Redneſs?

A. That Heat is the Cauſe of its Redneſs, and, conſequently, of Sanguification, no-body will deny, who ſees that Quinces, Beer, and other Things, which before were white, grow red with boiling; ſome Chymical Liquors alſo grow red by Fermentation; and Oyſters, which, from their Coldneſs, are without Blood, at a certain Time, their Heat increaſing, change their nutritious Juice into Blood.

CHAP. VI.

Of the Motion of the Heart.

Q. OF what Kind is the Motion of the Heart?

A. It is a muſcular Motion.

Q. How do you diſtinguiſh the Motions of the Heart?

A. Three Ways; the contracting Motion, call'd Syſtole; the dilating, Diaſtole; and the Pauſe between both, which is call'd, Peri-Syſtole.

Q. Are the Auricles of the Heart alſo mov'd, and in what Manner?

A. Both the Auricles of the Heart have alſo their Syſtole and Diaſtole, like the Ventricles; but whilſt it is their Syſtole, it is the Diaſtole of the Heart; and the Contrary.

Q. What is the Cauſe of the Contraction, or Syſtole, of the Heart?

A. The Syſtole of the Heart is performed by the Influx of the animal Spirits, proceeding from the Irritation of the Heart, by the Quantity, Turgeſcence, or ſome other Quality of the Blood; for the Blood naturally flows to an irritated Part, becauſe the Pores of the Brain are then opened by the Motion of the nervous Fibres; the Syſtole can in no way be effected by the mere Spring of the Heart, which cannot be great enough in ſo ſoft a Part.

Q. What do others ſay againſt this Poſition?

A. They ſay, that the Heart, being cut out, if it is prick'd, will continue beating: But, I anſwer, that this Pulſation is not performed without ſome Blood yet rarefying in the Ventricles; otherwiſe it is only performed by the Spirits in ſome Fibres yet remaining; and, conſequently, is not a true Pulſe.

Q. Whence come theſe Spirits?

A. From the Cerebellum; which conſtantly ſupplies them to the Heart, by the Nerves of the eighth Pair; for theſe being ty'd, in a Dog, he will die in a Day or two, with a Palpitation of the Heart, as *Lower* affirms; and his Death would happen ſooner, but that ſome ſmall Branches of the intercoſtal Nerves run to the Heart, which cannot be ſtopp'd by a Ligature: Thence it ſufficiently appears, how much the Heart ſtands in Need of the Brain, the Spirits (as mentioned before) flowing for the Conſtriction of the Heart, by the Irritation which it ſuffers in its Dilatation; whence thoſe, whoſe Hearts are weaker, as Children, and others, have the quicker Pulſe.

Q. Is not the Motion of the Blood accelerated by opening a Vein?

A. It is; as appears by the Pulſe growing quicker preſently after; which is partly occaſioned by the freer Paſſage of the Blood;

partly by Reaſon of its leſſer Quantity, in Regard of the Materia ſubtilis, or ſubtile Matter, which, on this Account, is not leſſen'd in the Heart, tho' it was only ſufficient before in the Blood.

Q. Is not the Conſtriction of the Heart perform'd in every Dimenſion?

A. The Heart is conſtring'd in every Difference of its Situation; and, that it might be perform'd with more Force, it hath many little Cavities and Chinks, that the Fleſh crouding together, might not hinder its Motion, its Cuſpis in the Syſtole is lifted up towards the Baſe, that is leſs moveable, and the Reverſe happens in the Diaſtole.

Q. Is the Syſtole perform'd with great Strength?

A. How ſtrong the Syſtole is, has been found, by putting a Finger into the Heart, which it will ſqueeze with as much Force as the Hand of a ſtrong Man: And this he muſt admit, who conſiders to what Diſtance, and through what Windings, it forces the Blood thro' the Body. I have ſeen it lift up the Ribs of the Left Side of a Child, that labour'd under a Palpitation of the Heart. In a noble young Lady, I alſo obſerved ſo ſtrong a Syſtole, that it made a remarkable Sound, that was heard by ſeveral in Company, as well as myſelf. In ſome Caſes it has been found ſo ſtrong, as to break the Ribs; though ſuch

Syſtoles are preternatural; but yet, from theſe Inſtances, we may judge of its natural Force.

Q. How do you again confirm, that the Syſtole of the Heart is effected by the Influx of the Spirits into the Fibres?

A. The Contractions of the Heart, or ſome Part of it, upon being prick'd, after it is cut out, does not hinder the Belief of the Influx of the animal Spirits, becauſe they are, indeed, effected by animal Spirits ſtill remaining in the Fibres, which flow'd thither by the Nerves. Nor does the Contraction that happens in the red, ſalient Point of an Egg, after Incubation, though the Nerves do not yet appear, diſprove this Opinion; for there alſo this Conſtriction is effected by an invigorated Membrane, while it is too much diſtended by the effervеſcent Blood and Humour which it encompaſſes with the repelling Contraction of its Fibres; whence it hath the Nature of a Muſcle, and is the Principle of the Heart.

Q. Why does the Heart beat more ſtrongly in the Left Side?

A. Becauſe the great Artery paſſes out on that Side, its Point, or Mucro, inclines that Way, and the Contraction there is greater, from the greater Strength of the Left Ventricle.

CHAP. VII.

Of the Pulſe.

Q. WHAT is the Pulſe?

A. The Pulſe, is an alternate Dilatation and Contraction of the Arteries.

Q. What is the Cauſe of the Diaſtole and Syſtole in the Pulſe?

A. The Blood is the Cauſe; which, whilſt it is driven into the Arteries by Conſtriction, partly by its Rarefaction, and partly by the greater Abundance, which follows upon its Addition at every Pulſe, to the pre-exiſting Blood in the Arteries, occaſions their Diſtention; and this is call'd Diaſtole. The Cauſe of the Syſtole, is, partly, the Reflux of the Blood into the Veins in the Time that the Heart is again dilated, by which the Channel of the Artery grows ſomething leſs, and, partly, alſo by the Conſtriction of the orbicular Fibres in each Coat of the Artery, by the Help of which, whilſt theſe Fibres are inflated with animal Spirits, by their being irritated in their Dilatation, the Artery continually endeavours, in ſome Meaſure, to contract itſelf.

Q. Do not the Arteries move with a Motion contrary to that of the Heart?

A. It appears they do, from what has been ſaid; for the Diaſtole of the Arteries happens with the Syſtole of the Heart, and *vice verſa*; but they move with the ſame Motions as the Auricles of the Heart, which likewiſe move contrary to the Ventricles.

Q. Why is there a Pulſe in the Arteries, and none in the Veins?

A. The Arteries in general have a Pulſe from the Nature of the Circulation; for the Blood moves through them, out of a larger Paſſage into a ſmaller, with a great Force, which occaſions their Expanſion; and then, becauſe the Artery reſiſts more the paſſing Blood with its double Coat, and is therefore vibrated by it.

Q. How do the Veins tranſmit the Blood?

A. From a narrower Paſſage to a wider, with a ſlower Motion, and they accommodate themſelves more to the paſſing Blood, and therefore are not expanded with the Force that is required to make a Pulſe.

Q. Is not the Pulſe of the Artery felt in the Diaſtole, but not in the Syſtole?

A. The Pulſe of the Artery is felt in its Diſtention (or Diaſtole) and then it recedes from the Finger; whence the Quickneſs of the Syſtole is known, by conſidering it with the Diaſtole.

Q. What is the Number of Pulſes in an Hour, and give me the Reaſon of the Variation of the Pulſe?

A. There are, at leaſt, 2000 Pulſes in an Hour in a healthy Perſon, commonly many more, as any one may experience, by numbering their own. In the mean Time, they are frequently varied by the Paſſions of the Mind, and other Accidents; thus they become quicker by Anger, by Joy, by Labour, by Running, *&c.* and ſlower in Sorrow and Fear, *&c.* through another Influx of Spirits into the Heart, and thereupon another Circulation of the Blood. In Children the Pulſe is quicker, becauſe their Hearts are weaker, and more eaſily irritated; their Arteries alſo are more eaſily dilated, and their Blood thinner, and eaſily rarefied.

C H A P. VIII.

Of the Motion of the Brain.

Q. WHAT is the Motion of the Brain?

A. The Motion of the Brain, is its conſtant Motion of Syſtole and Diaſtole, alternately, according to the Direction of its Subſtance, and independent of the Meninges.

Q. How do you prove the Motion of the Brain?

A. It is proved becauſe, upon its Motion, there is a remarkable Subſtance left between the Dura and Pia Mater.

Q. How do you prove its Motion further?

A. If the Brain is made bare, by taking off a thin Part of it, this Motion is apparent to the Eye: It is alſo reaſonable to believe it from the great Quantity of Blood and Spirits it receives from four Arteries, which cannot fail of lifting up ſo lax a Body, but the Syſtole of the Brain is the Diaſtole of the Heart, and the Contrary; as appears by applying one Hand to the Wriſt of an Infant, and the other to the Meeting of the Sutures in the Crown of the Head; for, by this Means, the Artery is perceived to beat with the Brain, and, conſequently, in the Contraction of the Heart.

Q. In what Manner then hath the Brain a Syſtole and Diaſtole?

A. It has a Diaſtole, upon the Quantity of the Blood and Spirits being increaſed; and a Syſtole, partly, upon their being leſſen'd again, by which it ſubſides; and, partly, by Means of the fibrous Subſtance of the Brain, and the Pia Mater, which is irritated, invigorated, and contracted.

Q. What is the Uſe of the Expanſion, or Diaſtole, of the Brain?

A. Its Uſe, is a certain perpetual Repletion of the Nerves and Muſcles by the animal Spirits.

CHAP. IX.

Of the Generation of Spirits.

Q. HOW are the Spirits generated; is it a natural Action; and how is it perform'd?

A. The Generation of the Spirits is abſolutely natural; and is no otherwiſe perform'd, than by the ſtriking of the Particles of the Blood againſt each other, and by a violent Motion among themſelves; whence it happens, that the Parts ſtanding out are broken off, and ſome Fragments of the Blood are ſo diminiſhed, ſubtilized, and poliſhed, that they are far more volatile than any other Parts in the Body, and fitter to flow into the fineſt Channels, and may be eſteem'd the *Primum Mobile* of the other Parts.

Q. What Parts of the Food are ſooneſt converted into Spirits?

A. Thoſe Parts which previouſly, of themſelves, come the neareſt to Spirits in Figure and Agility; ſuch as ſome of thoſe that are in Spirits of Wine.

CHAP. X.

Of Reſpiration.

Q. WHAT is Reſpiration? *A.* Reſpiration is a Motion by which the Air is alternately receiv'd into the Lungs, and again expelled out of them.

Q. How many Parts hath Reſpiration?

A. Two; Inſpiration, and Expiration.

Q. In what Manner, and by what Organs, is Inſpiration performed?

A. Inſpiration is partly performed by the Dilatation of the Thorax, in which the Air neareſt the Thorax is repelled, and this protrudes more Air (for the Univerſe is full of Bodies; nor is there any ſuch Thing as their penetrating each other by Nature) till ſome is received, by the Mouth and Noſtrils, into the Lungs; and, by their Means, fills up the Space left in the dilated Thorax, partly by the elaſtic Force of the Air, or its ſpontaneous Endeavour to expand itſelf: And, laſtly, in part, by the Preſſure it receives from the Weight of the incumbent Atmoſphere; from theſe Cauſes the Air is impelled into the veſicular Subſtance of the Lungs, and not from any fictitious Endeavour to avoid a Vacuum.

Q. In what Manner, and by what Organs, is Expiration performed?

Q. It is performed by the Conſtriction of the Thorax and Lungs; and alſo by the Heating and Rarefaction of the Air in the Lungs, by which the Parts of the Air mutually expel each other for Want of Room.

Q. The Expiration is not perform'd by the Diaphragma, the Lungs, or the Blood; but do not the Lungs contribute to Expiration?

A. The Fore-part of the Diaphragma, in Inſpiration, aſcends into the Thorax, but the Hinder-part is depreſſed by the Lungs being fill'd with Air; the Reverſe happens in Expiration.

Q. Is the Air we receive, by Inſpiration, entirely diſcharged by the next Expiration; and where does it come from?

A. The Air we receive by one Inſpiration, is not totally expelled by the next Expiration, but ſome Portion of it may remain in ſome Veſicles of the Lungs, which is thrown out by the ſecond Exſpiration; ſo ſome Part of the ſecond Inſpiration may remain for the third Expiration, and ſo on.

Q. Is there not a certain Moiſture diſcharged with the Air in Expiration?

A. How great a Moiſture is diſcharg'd with the Air, may be ſeen by a Looking-Glaſs, or Window, which we breath upon in Winter Time, for it is preſently condens'd into Drops, and even when we breath in the open Air of the Room, in very cold Weather.

Q. Whence does this Moiſture chiefly proceed?

A. It proceeds chiefly from the Vapours in the Thorax and Lungs; for they may be taken into the Lungs again; as we ſee the extravaſate Blood in the Cavity of the Thorax inſinuate itſelf into the Lungs, and diſcharge itſelf by the Mouth.

Q. Can the Air, on the Contrary, that is taken into the Lungs, penetrate into the Cavity of the Thorax?

A. Not in the leaſt; the Reaſon is, becauſe thoſe extreme ſmall Paſſages, which are in the Membrane of the Lungs, yield a Paſſage from the Cavity of the Thorax to the Lungs, but not back again; and that, by Reaſon of their oblique Situation between the Lamellæ of the Membrane of the Lungs, by which they imitate Valves, as we ſee in the Orifice of the Urethers, which can tranſmit the Urine to the Bladder, but will not let it flow back again.

Q. Does not the Reſpiration continue, when the Thorax and Lungs are hurt?

A. Though one Side of the Thorax be hurt, or one Lobe of the Lungs conſum'd, there will ſtill be ſome Reſpiration, becauſe ſome Air may yet be convey'd to the Lungs by the Mouth and Noſtrils.

Q. Is Reſpiration, in itſelf, a ſpontaneous, or voluntary Action?

A. Reſpiration is, in itſelf, a ſpontaneous Action, becauſe it is perform'd, even againſt our Will, and when we know nothing of it, as in Sleeping; yet it is voluntary, as to the Manner of it, becauſe we can accelerate and retard it at Pleaſure; and we have this Power, becauſe the Motion of the Thorax is commonly perform'd, partly, by a voluntary Influx of the Spirits, by ſome Nerves deriv'd from the ſpinal Marrow; otherwiſe, as far as that Motion is perform'd by the Spirits, from the Nerves of the Par Vagum, ſpringing from the Cerebellum, whoſe Influx is not perform'd at the Power of the Soul, ſo far the Reſpiration is involuntary. Notwithſtanding, it may be underſtood, how Inſpiration and Expiration are perform'd ſo regularly; that is to ſay, becauſe, in Inſpiration and Expiration, ſome Parts being ſucceſſively longer irritated than others, re-call the Spirits into themſelves from the Cerebellum, with a troubled Motion of the nervous Fibres by Succeſſion; and, being thus contracted, ſucceſſively cauſe Inſpiration and Expiration. I do not doubt that, during Inſpiration, the intercoſtal Muſcles, the Diaphragma, and others, that ſerve for Expiration, are thus irritated, whilſt they are longer ſtrain'd by their Antagoniſts; and alſo, that the Lungs are ſo irritated, whilſt the Blood, through the Want of freſh Air, being too much heated, ſwells in them, and gives them too great an Expanſion; and the Contrary happens in Expiration, when the Parts, ſerving for Inſpiration, are ſo irritated.

Q. What is the End of Reſpiration?

A. The principal End of Reſpiration, is the Voice; to form which, there was Need of Air, alſo the Excretion of ſome thick Vapours, or certain aduſt Particles (which neceſſarily ariſe from our Heat) a certain Refrigeration of the Blood, and the drawing odoriferous Particles to the Noſtrils.

In Regard to the Vapours, they continually come with the Blood, through the pulmonary Artery, to the Bronchiæ, and are exhal'd, otherwiſe they would extinguiſh the native Heat.

In Regard to the Refrigeration of the Blood, here you may obſerve, for what Reaſon the Air cools it, and why all Sorts of Air is not fit for Reſpiration. I know, indeed, that others will have it, that Reſpiration is not intended to cool the Blood, but for the Ventilation, and exciting of the vital Flame reſiding in the Blood, and are ready to prove this by many Arguments: But it comes to the ſame Thing with what I mean by Refrigeration; for I do mean it ſuch, as not to deſtroy the Heat, but continue it; for, through Defect of Reſpiration, the Blood would looſe its Heat.

Q. Why is Reſpiration accelerated in Fevers?

A. Whilſt the Blood flows into the Lungs from the Right Ventricle of the Heart, and into all the reſt of the Body from the Left, it would be diſſolv'd by the febrile Heat, and would almoſt entirely evaporate in Fumes, and would not ſufficiently preſerve its Warmth, if it was to remain in the Lungs as long as when it is in the natural State, and ſo the Heart would ſooner be deſtroy'd, or elſe this would happen, becauſe the Blood being too much rarified in the pulmonary Artery, and being mov'd every Way by its Turgeſcence in this Paſſage, it would cloſe up the Valves of the Right Ventricle, and, by ſtopping the Motion of the Blood, would be the Occaſion of the Suffocation of its own Heat; and this I take to be the Caſe of ſuch as are hang'd; although their Death may be partly cauſed by the Defect of the Influx of the animal Spirits into the Heart, through the Compreſſion of the Nerves of the Par Vagum, and by the ſhutting up the carotid Arteries.

Q. Do not thoſe who breath with Difficulty, eaſily fall into a Pthyſick?

A. Thoſe whoſe Lungs do not move freely, through any natural Defect in their Make, do eaſily fall into this Diſeaſe; becauſe their Lungs, having not a due Freedom of Motion, cannot diſcharge the Fumes, and other acrid and groſſer Particles of the Blood, whence they become obſtructed, and, at length, corrupted and eroded.

Q. Doth the Fœtus breath in the Womb?

A. It is certain, that the Fœtus does not breath in the Womb, as appears by many Arguments.

Q. What is the Reaſon then, that it breaths ſo freely as ſoon as born?

A. This happens, becauſe of the Motion of the Fœtus in its Birth, its Blood circulates much quicker, and rarefies in the Lungs; and then, becauſe the ambient Air, by its elaſtic Force, or by the Preſſure of the Atmoſphere, immediately flows into the Lungs, by which they are irritated, and they endeavour the Expulſion of the irritating Air by their own Contraction, join'd to that of the Thorax; theſe Cauſes being increaſed, the Irritation continually encreaſes the Expulſion, and ſo Reſpiration, and the Neceſſity thereof, are continually encreaſed.

Q. By what Means do Divers continue under Water?

A. Divers can remain a long Time under Water, without Breathing, becauſe they know how to fill themſelves with a large Quantity of Air, and becauſe their Heat is leſs: Some ſay, they breath, and know how to ſeparate the Air from the Water, by certain Application of the Hand, or ſome Inſtrument to the Mouth.

Q. In what State are hyſterick Women, when they are not perceived to breath?

A. Hyſterick Women are ſaid, ſometimes, to continue alive a great while, without breathing; but, I think, they breath ſufficient for their languid Heat, though not perceptibly; or elſe the Air paſſes in and out of the Lungs imperceptibly; and this is ſufficient to preſerve them alive.

CHAP. XI.

Of the periſtaltic Motion of the Stomach and Bowels.

Q. WHAT is the periſtaltic Motion?

A. It is a vermicular Motion, by which the Stomach and Bowels are continually and ſucceſſively ſtraitened from the Beginning to the End, and move with a waving Motion, like the Creeping of Worms. This Motion is ſometimes inverted, and then it is call'd, Epiſtaltic; which is cauſed by the violent Influx of Spirits into the Fibres, or the Fibres being overcharged, the Spirits, in a Manner, flow back through them, and, by inverting their Motion, cauſe a Vomiting.

CHAP. XII.

Of Nutrition.

Q. WHAT is Nutrition?

A. It is the Converſion of our Food into the Subſtance of the living Body, or the natural Reſtoration of Parts waſted. Nutrition is not perform'd by Attraction, nor by any Juice proceeding from the Nerves, but rather by the Chyle. I take no Notice here

Of the Growth of young Perſons;

Of the Decays of Age;

Of Generation, *&c.* having mention'd theſe Things before.

THE
RUDIMENTS of PHYSICK,
PART the SECOND.
CONTAINING
HYGIENE:
OR, THAT
Branch of it which treats of HEALTH, and the proper Means of preſerving it.

CHAP. I.
Of the Non-naturals.

Queſtion.

WHAT do you underſtand by the Term *Hygiene?*

A. I mean, the Art of preſerving Health.

Q. Of how many Parts does it conſiſt?

A. Three: 1. The Preſervation of preſent Health. 2. How to avoid Diſeaſes. 3. The Means of attaining long Life.

Q. What are thoſe Things you call Non-naturals?

A. They are thoſe Things which are neceſſary to preſerve Health, but injure it when they are not rightly us'd, or are vitiated.

Q. What is the Number and Quality of the Non-naturals?

A. There are ſix: 1. The Air. 2. Meat and Drink. 3. Motion and Reſt. 4. Sleep and Watching. 5. The Excretions and Retentions. 6. The Paſſions of the Mind.

Q. Are the Non-naturals indifferent, either to injure, or benefit our Health?

A. They are, according as they are, or are not, rightly us'd; and are a Sort of Medium between the natural Things, and the Things contrary to Nature.

Q. How can the ſame Thing be agreeable to Nature, and contrary to it, under a different Conſideration?

A. Theſe Things, under the ſame Senſe, appear contradictory; but, under a different Conſideration, a Thing agreeable to Nature, may be contrary to Nature: For Inſtance; Animal Motion is a Thing natural; in as much as a human Body hath that Motion from Nature; and Non-natural, when it is exerted too far.

Q. What do you underſtand by being ill us'd, as here underſtood, and whence does it proceed?

A. By being ill us'd, ought to be underſtood of the Uſe in the different Reſpect of this or that Perſon; or, in other Terms, what is ill apply'd to one, is rightly us'd by another, according as Nature and Cuſtom vary in different Perſons; to which much ought to be allow'd in the Uſe of the Non-naturals.

And, indeed, the ſame Thing may be proper at one Time, and improper at another; whence there are various Ways, in which theſe Things may be wrong us'd: As for Example, they may be wrong in Quantity, either too much, or too little: Or in Quality; that is, too hot, too cold, moiſt, or dry; or too thick, too thin, viſcous, acid, ſalt, or hard, *&c.* or wrong in the Time of Eating or Drinking; or, in the Courſe of Eating, while this or that Sort of Food is eaten firſt or laſt, *&c.* as will be better underſtood when we ſhall treat on each of the Non-naturals ſeparately.

Q. In what Manner are the Non-naturals call'd neceſſary.

A. According to their general Heads, but not their particular Species; ſo Food in general is neceſſary, but not this or that particular Sort; but how neceſſary the Non-naturals are, will ſufficiently appear from what we ſhall ſay under each particular Head.

CHAP. II.

Of the Air.

Q. HOW do we conſider the Air?

A. We conſider the Air not by itſelf, ſimply and alone, but as it ſurrounds us; that is, as it has various Corpuſcles mix'd with it, with which it may affect us.

Q. How many Ways does it affect our Bodies?

A. In a double Manner, outwardly and inwardly, and either Way again variouſly, either by itſelf, or whether mix'd with other Corpuſcles.

Q. Can the Air affect us by the Corruption of its own proper Subſtance?

A. If the Air is full of watery Vapours, it moiſtens the Body; if the Air is mix'd with a ſubtle Æther ſtrongly mov'd, it greatly heats us; if it is mix'd with certain Narcotics, as it happens in ſome Places, it will affect us with Drowſineſs, with a deadly Sleep, and with ſudden Death; if it is infected with a peſtilential Contagion, it will give us the Plague.

A. Are we not more affected by the Air, than by our Food?

A. As they act in different Ways, we cannot ſo eaſily judge in this Matter; but it is certain, we are greatly affected by both; and, indeed, more conſtantly, and for a Continuance, by the Air, than by our Aliments; for we can ſcarcely ſubſiſt a Moment without Air.

Q. What Effect hath the Air upon us?

A. It tempers the Heat of our Blood; for, without the Air, we ſhould ſoon be ſuffocated.

Q. What Air is beſt for our Health?

A. Clear Air, fann'd by wholſome Winds, and not infected with ill Smells from Carcaſſes, Common Shores, and other putrid and corrupt Vapours and Exhalations.

Q. Do not different Ages, and different Conſtitutions, require a different Air?

A. In a temperate Body, the Air ſhould be temperate; in a cold Temperament, a warm Air is beſt; and the Contrary in different Conſtitutions.

Q. Under the Article of Air, do you not comprehend the Winds, the Stars, and their Effects on the human Syſtem; and alſo the Seaſons of the Year?

A. Yes, I do.

Q. What is the Wind?

A. The Wind is nothing elſe than the Air, with the Exhalations and Vapours, contain'd in it, put in Motion about the Earth.

Q. Of what Uſe is the Wind?

A. It preſerves the Air, which otherwiſe would putrify, and diſperſes thoſe Vapours that would render it corrupt.

Q. How many Winds do the Seamen reckon in their Compaſs?

A. Some reckon 24; ſome 16; others 12; but they are commonly reckoned 32.

Q. Which are the Winds call'd the Cardinal Points?

A. They are four, *viz.* Firſt, the North, which, in our Clime, or Region, is cold and dry.

Secondly, the South, which is hot and moiſt.

Thirdly, the Eaſt, which is hot and dry.

Fourthly, the Weſt, which is cold and moiſt.

Q. What may be ſaid of the Salubrity of the Winds?

A. The South Wind, in our Region, is very unhealthy, bringing on Torpors, Drowſineſs, &c. and oppreſſing both the animal and vital Actions. It is likewiſe obſervable here, both the Northern and Southern Winds, blowing long, have a malignant Influence.

Q. What may be ſaid of the Eaſt Wind?

A. In the Morning, with us, the Eaſt Wind is very pure and rare, as, at that Time, it blows from that Quarter where the Sun riſes. The ſame may be ſaid of the Weſt Wind when it blows in the Evening.

Q. What do you call a Region?

A. It is a Part of the Earth, on which the Solar Rays fall either more directly, or obliquely, or is remarkably diſtinct, for ſome peculiar Quality.

Q. How are the Regions divided?

A. They are principally five: Firſt, the Equinoctial Region, ſituate immediately under the Line.

Secondly, the North; under which we include that Space between the Circle of *Cancer*, and the Artic Pole.

Thirdly, the Southern, or that Space between the Circle of *Capricorn* and the Antartic Pole.

Fourthly, the Eaſtern.

Fifthly, the Weſtern.

Q. What Changes hath the Air from the Stars?

A. The Stars have their Changes from the Sun and Moon, eſpecially in the Solſtices; upon which you may read Dr. *Mead*'s Treatiſe, *De imperio Solis & Lunæ.*

Q. How is the Air chang'd in Spring, Autumn, Summer, and Winter?

A. In the Spring, we find the Air receives a remarkable Change, becauſe the Sun begins to ſhine upon our Part of the Earth with more direct Rays; and becauſe certain active Principles are communicated to the Air, by the Heat of the Sun, which lay dormant, in the Boſom of the Earth, all the Winter; by which Means the Air being heated, is broken into many Parts; and, as it is more and more attenuated by the gradual Heat of the Sun, through its encreas'd Motion, requires more Space, is more directly oppos'd to the Rays of the Sun, and the Air is thereby more rarified.

Q. What farther Effects hath this vernal Air?

A. As we breath and are ſurrounded by this Air, impregnated with much ſubtile Matter, and other various Particles, it gives a greater Motion to the Blood, and yielding more ſubtile Matter to the groſſer Blood, makes it more fluid, by which we are render'd more lively, and better diſpoſed to perform all the Actions of Life.

Q. What do you remark farther of this vernal Air?

A. If any Obſtructions are form'd in the Winter Time, they are remov'd by the greater inward Efferveſcence of the Blood; the Matter obſtructed, and obſtructing, are again mingled with the Blood; and, as the Maſs of Blood is thereby depraved, they bring on Agues, and other Diſtempers.

Obſerve, firſt, we ſhall eaſily underſtand theſe Things, if we conſider the different Temper of the Air, now hot, and then cold; the Blood is hereby more or leſs heated; and, from theſe diſagreeing Motions, Coagulations and Obſtructions often ariſe.

Obſerve, Secondly, the Air is moſt wholſome in *March*, in *April*, and *May*, by how much nearer the Beginning of Summer, ſo much is the Air more temperate, and the

State of the Humours in the Body more perfect.

Obſerve, Thirdly, that in *July* and *Auguſt*, the Air is exceſſively hot, and therefore unhealthy; for the Blood being hereby ſupply'd with corrupt Particles, both from the Air and Earth, the regular Union of the Humours are diſſipated, and the finer Parts, which were of greater Conſequence in the animal Oeconomy, paſs off by inſenſible Perſpiration; and, by their Loſs, the Blood is corrupted.

Obſerve, Fourthly, that in Autumn Fevers, and other Diſeaſes prevail; for in *Auguſt* the Efferveſcence of the Blood is continued; but in *September*, through the Coldneſs of the Air, ſuddenly thickening the Humours, various Obſtructions, and malignant Fevers, ariſe; becauſe, in the former Seaſon, the Blood was deprived of its Spirits. To this we may add the Fruits that are eaten raw, the Juices of which can neither be digeſted by the Ferment of the Stomach, nor by the Acid inthe Blood, but rather corrupts it; from whence proceed the Fevers and Fluxes, which generally reign at this Time.

(The SUMMER.)

This happens more ſo, if the Summer has been very hot, and abounded in Fruits.

(WINTER.)

The Winter's cold Air does not totally ſuppreſs the Efferveſcence of the Humours, but leaves ſufficient for better performing all the vital Actions; for the Tranſpiration of the Humours in Winter is leſs, thro' the greater Preſſure of the condens'd Air that ſurrounds us; but, being confin'd in the Body, renders the Maſs more fluid, and fitter to ferment.

The Ferment of the Stomach is ſharper, and more plentiful, ſo that it will eaſily digeſt the harder Kinds of Food.

Winter is diſadvantageous to the Aged and Decay'd, becauſe of their little Warmth; but healthy to younger Perſons; and, ſometimes, to Cachectics.

CHAP. III.

Of Meat and Drink.

Q. WHAT is Meat?

A. Meat is the more ſolid and groſſer Food, chiefly to ſatisfy Hunger.

Q. Why do you ſay chiefly?

A. Becauſe ſome thinner Kinds of Meat may, in ſome Meaſure, allay Thirſt, as the thicker Sorts of Drink may appeaſe Hunger. The Neceſſity of theſe Things, and how eaſily we are hurt by them, is well known to all Perſons.

Q. Are there various Differences in Foods?

A. There are; for ſome have good or bad Juices, or are of lighter or harder Digeſtion, containing much or little Nouriſhment.

Q. Which is the beſt, and which the worſt Food?

A. The beſt, is that which contains good Juices, of eaſy Digeſtion, and containing the moſt Chyle; and the Contrary to theſe is the worſt.

Q. Which is the beſt Bread?

A. That is the beſt, which is made of good Wheat, of which there are three Kinds, white, ſecond, and brown; there is alſo a Sort made of Rye; but this is harder and blacker, and ſits heavy upon the Stomach.

Q. Which is the beſt Fleſh?

A. Of Quadrupeds, Veal * is the beſt; after that, Mutton and Kid. Of Birds, *&c.* Chickens, Capons, Pidgeons, and Partridges, are the beſt.

Q. Which do you reckon good Fiſh?

A. Of Sea Fiſh, the Cod, Sole, *&c.* of River Fiſh, the Perch, the Trout, and Gudgeon: Of the Produce of Animals, we have Milk and Eggs; and of Fruits, Figs and Raiſins.

Obſerve, from what has been ſaid, that the Foods here mentioned are not beſt and moſt wholſome for all ſorts of Perſons promiſcuouſly; nor is there any that agrees with every Perſon; but every one is to conſider which agrees beſt with them; for thoſe who have ſtrong Stomachs, or labour much (as Plowmen, Soldiers, and Seamen) find Beef and Pork beſt, becauſe they produce a more ſolid and thicker Blood, which carries a great deal of Nouriſhment, and is not ſo eaſily waſted.

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* I think here the Author's Taſte has miſled him, Mutton being looked on as the moſt perſpirative, and eaſy of Digeſtion.

Q. You mentioned Fiſh before, what Sort of Blood do they afford.

A. Though many People think Fiſh unwholſome, yet they afford a Blood of a good and middle Conſiſtence; they are light of Digeſtion, if taken from clear Waters, and good for thoſe of a phlegmatick Conſtitution.

Q. What Order ſhould we obſerve in our Meats?

A. Thoſe more ſolid are generally eaten firſt, becauſe they ſooner imbibe the Acid that lies at the Bottom of the Stomach, and are of harder Digeſtion. As to my ſelf, I am of Opinion, that all the ſeveral Kinds of Food we take are confuſedly mix'd together in the Stomach, and that the Order of Eating is not long preſerv'd.

Q. When is the beſt Time to eat?

A. When we are hungry, and the Stomach empty. Obſerve, that ſome Perſons have a Senſation of Hunger when the Stomach is full, through the great Quantity, or Sharpneſs, of the Acid, which is not natural Hunger, and this is to be ſuppreſs'd by Medicines, rather than Diet.

Q. How many times a Day ſhould we eat?

A. This cannot be ſaid in general: Bilious Perſons, becauſe their Hunger is more frequent and they are of a drier Nature, may eat moderately three or four times a Day: Phlegmatick Perſons, once a Day, becauſe they bear Hunger better, and do not waſte ſo much Blood: Melancholy Perſons, may eat twice or thrice a Day, becauſe of their Acidity: Thoſe of a Sanguine Complexion, ſhould obſerve a Medium.

Q. What Quantity are we to eat?

A. Sufficient to ſatisfy Hunger, without loading the Stomach; the Quantity of Meats are to be varied according to the Difference of Conſtitution, Strength and Age; one Quantity agrees beſt with the Flower of Age, another with old Age; the Weak, the Strong, the Healthy, the Sick, the Bilious, the Phlegmatic, thoſe who labour, and thoſe who ſtudy, all require different Quantities of Food.

It is better to eat rather too much, than too ſparingly, and rather to allow ſomething to the Gratification of the Palate, than barely to ſatisfy Neceſſity and mere Hunger. It is alſo good to obſerve that Rule which *Celſus* gives in his Precepts, as the Secret of prolonging Life, and preſerving Health; that every one ſhould uſe Contraries, by Turns, and often Change the Method of Diet; but always inclining to the moſt favourable Extreme; that is, ſhould ſometimes uſe a plentiful, and ſometimes a ſpare Diet; but moſt frequently a plentiful Diet. For thus the Stomach, by Degrees, is accuſtomed to bear little Exceſſes, without Trouble, and can alſo digeſt more.

Q. What ought to be the Quality of the Food in different Conſtitutions.

A. The Quality of the Food ought to be varied according to the Difference of Conſtitution, Age, Time, and Cuſtom: So thoſe who are hot and dry, require cold and moiſt Food; Children ſofter than young and full grown Perſons; in Summer colder than Winter: And, laſtly, for thoſe who are us'd to it, ſtrong Meats are better than the weaker Kind. Boil'd Meats are eaſier digeſted than roaſted, for they are ſofter; but roaſt Meats are more nouriſhing, becauſe they abound more with nutritious Juices, as appears upon being cut with a Knife, for they have an outward Cruſt that preſerves the inward Moiſture, which is diſperſed in the Broth of boil'd Meats; therefore roaſt Meats are beſt for thoſe that uſe Labour and Exerciſe, and boil'd Meats for the Sedentary. But whether Chylification is better perform'd by Day, than by Night, and whether it is beſt to eat moſt at Dinner, or Supper; and whether the Food paſſes out of the Stomach in the ſame Order it is received into it; and alſo why we are cold after Eating, *&c.* may be ſeen where I treat of Chylification.

N. B. Review the Article of Chylification in Phyſiology, Part I. Chap. VIII.

Q. What is Drink?

A. It is a thin, liquid Aliment, for allaying Thirſt.

Q. Mention ſome Kinds of Drink.

A. The principal Kinds are Water, Wine, Hydromel, or Mead and Beer.

Q. Is there any Nouriſhment in Water?

A. There is; for many Men live tolerably well with Water only for Drink, and ſeem to be refreſhed after drinking it: And further you may obſerve, that Fiſh will live upon Water in an earthen Veſſel, and even grow bigger; and it appears that Plants receive their Nouriſhment from Water, as their Growth often exceeds, in Weight, the Earth the Veſſel contains in which they are planted.

Q. What Kind of Water is beſt?

A. There are many Kinds of Water; but the beſt is Spring Water, that is clear and ſweet, without any Taſte, and in Colour like the Air. Some judge of the Goodneſs of Water by its Lightneſs; but this is not to be underſtood of its Weight in a Ballance; for frequently bad Water is lighter than that which is better; that is the beſt Water, which is grateful to the Stomach and Bowels. Vide Dr. *Martin*, *Liſter*, and other Authors, who have wrote entirely upon this Subject.

Q. What is Wine; what are its Kinds; and what are its Effects?

A. Wine is a Juice expreſs'd from Grapes: There are various Sorts of Wine, and they differ in Heat, Flavour, Taſte, Thickneſs, Thinneſs, and Age. Wine is hot and dry, unleſs it is unripe, as Verjuice, for this is cold. The beſt Wine, is that which is not ſo auſtere, or ſweet, but a Medium between both. Sweet Wine is very nouriſhing, is Food for the Breaſt, but generates Bile: Rough Wine, on the Contrary, hurts the Breaſt, and is very aſtringent. Fragrant Wines wonderfully raiſe the Spirits, but afterwards make the Head ach. White Wine ſtrengthens the Stomach, and other Parts, and improves the Blood: But Red Wine generates Blood, and nouriſhes more, but cauſes Obſtructions: A thin Wine is more opening than a heavy one, and ſooner paſſes off, but is not ſo nouriſhing.

New Wine, or Muſt, is not ſo hot as old Wine, but breeds Flatulencies, unleſs it purges the Belly. Old Wine affects the Head more. Rheniſh Wine, by its great Crudity and Thinneſs, beyond all others, eaſily excites the Humours to a Flux, and ſeparates them crude from the Maſs, and hereby cauſes the Gout.

Q. What is Beer, its Kinds, and Qualities?

A. Beer is made of Water, Malt, and Hops, brew'd together; Hops are added, becauſe it preſerves the Beer, and purifies the Blood; and, according to their different Quantity, is called Beer, or Ale.

That Beer is moſt wholſome, which is well boil'd and wrought; for if it is not well wrought, it breeds Obſtructions, and cauſes Gripings. Some Beer is ſtronger, other ſmaller, according to the Quantity of Malt in each; ſome is higher colour'd, and another paler, according as it is boil'd a longer or ſhorter Time.

Q. What is Mulſa, or Hydromel?

A. Mulſa, or Hydromel, is made of Water and Honey; one Kind has much Honey, another little; one Kind is boil'd and ſcum'd, another Sort is made only by ſtanding in the Sun, but this is cruder, and occaſions Obſtructions; that which is boil'd, is grateful to the Breaſt, and good to remove Obſtructions.

Q. What is Cyder, or Wine of Apples?

A. It is made of the Juice of Apples, either acid, or ſweet, ſquezed out by a Preſs, or Mill, and afterwards fermented and cleans'd from the Fæces like Wine. This Liquor is cold, but warmer, if made from ſweet Fruit: It is pleaſant, but affects the Head.

Q. How much, and in what Manner, are we to drink?

A. We ought to drink a ſufficient Quantity to moiſten our Meat; for the dry Food is not ſo well diſſolved, becauſe the Acid of the Stomach does not penetrate it thoroughly.

On the Contrary, if we drink too much, the Acid is too much diſſolv'd and weakened, and is carried out of the Stomach before the

Meat, which floats in the Stomach, and ſo its Diſſolution is hindred.

But it is beſt to drink a little, often, between Eating, than to drink one, or two large Draughts at the End of a Meal; for by this Means the Aliments are better mingled, and Digeſtion aſſiſted.

But I am not ſo rigorous as ſome, in forbidding the leaſt Draught of Liquor before Meals, eſpecially where the Stomach is dry, for that Liquor is as well mingled with the Aliments, as if it was taken after eating a little; but it is not good to drink before Eating, becauſe it waſhes the Acid out of the Stomach, before the Meat comes into it.

Drinking after Dinner is condemn'd by many, but very few abſtain from it; but it is certain, that it diſturbs the Chylification, and waſhes off the Acid that is employ'd in perfecting the Chyle.

Yet we may ſafely drink a little after Dinner, if the Digeſtion is over, or almoſt finiſh'd, and eſpecially if we are very thirſty.

Q. Is the Exceſs in Meat, or Drink, of worſt Conſequence?

A. I reply, that it is moſt dangerous to exceed in Eating, for it ſo relaxes the Fibres of the Stomach, by a daily Expanſion, that afterwards it will not digeſt the Food; and alſo becauſe it leaves after it more Crudities; whence follow Obſtructions, vitiated Concoctions,

tions, *&c.* but Exceſs in Drink, as it ſooner paſſes through the Body, ſo the Effects of it may be ſooner remedied, and carried off.

CHAP. IV.

Of Sleep and Watching.

Q. WHAT is Sleep?

A. Sleep is the common and ordinary Indiſpoſition of the Senſes to Action.

Q. Why do you add common?

A. That I may exclude the Apoplexy, Lethargy, *&c.*

Q. What is the Cauſe of Sleep?

A. Sleep is a Relaxation of the Fibres, of which the Brain is chiefly compos'd, ſo that the Motions then impreſſed on the Organs of the five external Senſes, cannot be propagated to the Seat of the Soul, and be there known in the ſame Manner as the Motion given to a String unbraced, is not ſo readily promoted, as if it was wound up ſtrongly.

Q. What is the Cauſe of Sleep, and whence does it proceed?

A. It proceeds from the animal Spirits not ſufficiently inflating and expanding thoſe fine Tubes, either through their failing entirely, or through their Sluggiſhneſs and Fixation.

So, according to this Account, after Labour we are inclin'd to Sleep for Want of Spirits (unleſs the Spirits are preternaturally active) We are affected in like Manner after taking Opium, or other Narcotics, becauſe ſuch Things, with their volatile, oleous Quality, ſeize and fix the Spirits. Laſtly, after Eating and Drinking we are commonly inclin'd to Sleep, becauſe then the Moiſture of the Brain is encreas'd, which relaxes the Fibres; and, perhaps, alſo becauſe the Vapours do give ſome Obſtruction to the Spirits. Yet there are ſome Perſons who, after drinking plentifully * (unleſs the Wine contains ſome narcotic Quality) ſleep uneaſy, becauſe the Spirits are inflam'd by the Heat, and rendered more fervid.

The Neceſſity of Sleep, to ſupport Life, appears from hence; that we cannot live without it, as it recovers the animal Spirits which are waſted in waking, by the Operation of the external Senſes and animal Motion; not that we generate more Spirits ſleeping than waking (for I believe we generate moſt Spirits waking, through the greater Motion of the Blood, and Tenſion and Poroſity of the Brain) but becauſe ſo many Spirits are not waſted in Sleep, when we are without Senſe and voluntary Motion: But Sleep ought to be moderate; that is, in Proportion to every Perſon's Conſtitution and Conſumption of Spirits.

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* These are Perſons of ſanguine and bilious Conſtitutions.

Q. What is the Effect of common and moderate Sleep?

A. It ſtrengthens and moiſtens the Body, and makes Men active in their ſeveral Employments; but too much Sleep dulls the Spirits, moiſtens and relaxes the Brain too much, and makes Men ſtupid and heavy; and, on the Contrary, too little Sleep deſtroys Moiſture, emaciates and weakens the Body. That Sleep gives Moiſture to the Body, no one will think ſtrange; for by the leſſer Influx of Spirits in Sleep, all the Parts are relaxed, and therefore the Pores more open; and alſo the Heat being leſs in Sleep, there is not ſo great a Waſte of the Humours.

That we have leſs Heat in the Time of Sleep, I have prov'd, where I treat of natural Heat; but that the animal Spirits do not flow equally into the Habit of the Body, ſleeping or waking, proceeds from this, that then the animal Motions gradually decreaſe, becauſe nothing involuntary determines the Soul to ſend the Spirits into the Muſcles; and therefore the Muſcles of the whole Habit are only ſupplied with that Proportion of Spirits, which is conſtantly ſent forth by the Brain, upon their being newly formed there, and which continually flows forth ſlowly into the Nerves for the Performance of their neceſſary Actions.

Q. In what State is the Soul in true Sleep?

A. In true Sleep, the Soul ought to be as conſcious of nothing, and, in a Manner, ſtupified,

pified, that is, at leaſt, not to perform any notable Operations; and if at any Time we talk and reaſon in our Sleep, or get up and walk in a Dream, as ſome People do, that Sleep is imperfect and diſturbed; ſo we ſee ſuch Perſons are ſcarcely more refreſhed by it, than if they had been awake.

Many are of Opinion, that the Soul always thinks, and affirm, that its Eſſence conſiſts in Thought, ſo that without it, it would ceaſe to be; but that the Thought is weaker, or only leſs perceptible to us, wherefore it always thinks ſomething, in an apoplectick Fit, and even in the Fœtus, that otherwiſe it is not intelligible how the Soul can be determined to think by a corporeal Subſtance, becauſe then the more ignoble Cauſe would produce the more noble Effects.

The vital Actions continue nevertheleſs in Sleep, *i. e.* the Motion of the Heart, the periſtaltic Motion, Digeſtion, *&c.* becauſe theſe are perform'd independent of the Soul, and chiefly by the Spirits flowing from the Cerebellum, which are not governed by the Soul.

Q. How do we take ſound and quiet Sleep?

A. Sound and quiet Sleep is conveniently taken at Night, in a ſoft Bed for thin and dry Conſtitutions, and in harder Beds for thoſe who are fat, with the Head higher or lower, according as the Parts of the Body are affected with ſuch or ſuch a particular Way of Lying.

Q. Is Sleep in the Day ſo unwholſome as ſome People imagine?

A. Many forbid Sleep in the Day, and chiefly after Dinner, as if it hurt the Head, and dull'd the Senſes; but I do not think it ſo bad, eſpecially in thoſe who are accuſtom'd to it; for by this Means the Spirits and Strength, that were waſted with Labour and Care, are recruited; and, indeed, it is now become a Cuſtom, among moſt of the higheſt Rank, to ſleep a little after Dinner; and they find Benefit by it. And there appears no Reaſon why it ſhould be worſe than at Night, unleſs we may ſay it hinders the Night's Reſt, and makes it troubled and uneaſy.

Q. How long are we to indulge ourſelves in Sleeping?

A. The Time of Sleep ſhould be commonly ſeven Hours; for in that Time the Digeſtion is, for the major Part, perform'd, and the Chyle diſtributed, to ſupply the Waſte of the Spirits and Humours.

A longer Time of Sleep is convenient for ſome, and a ſhorter for others; ſo more Sleep is convenient for Children; becauſe, thro' the Thinneſs of their Skin, they perſpire much; and alſo, becauſe they are naturally very moiſt: More Sleep is alſo neceſſary for the Aged, the Bilious, and Dry, becauſe it moiſtens the Body, and reſtores the Spirits; the Fat and Phlegmatick require leſs Sleep; alſo thoſe who are weary, ought to ſleep longer.

Q. Which Side is it beſt to ſleep on?

A. This depends chiefly upon Cuſtom.

Q. What is Waking?

A. Waking is the neareſt Diſpoſition of the outward Senſes to Action; I do not ſay it is the Action of the Senſes, becauſe I think a Perſon may be actually awake if he was ſhut up in a Cave, where he ſhould neither ſee, hear, ſmell, taſte, nor feel; or where he ſhould not attentively think of any Thing, and yet ſuch a Perſon could not be truly ſaid to be aſleep; or elſe we ought to ſay, that Waking is the Operation itſelf of the outward Senſes, and Sleep its Ceſſation.

Q. What is the Cauſe of Waking?

A. It is a due Tenſion of the Fibres of the Nerves, effected by the Influx of the Spirits, ſo that the Motion impreſſed upon the Organs of the external Senſes may be eaſily propagated to the Seat of the Soul, and there perceived; whence thoſe are troubled with obſtinate Watchings, who have the Spirits too ſwiftly moved in the Brain, as in Fevers, Want of Food, Frenzy, whether they are in themſelves too hot, lively, or paſſionate, or whether they have a Mixture of theſe.

Q. What Inconveniencies are produced by immoderate Watching?

A. Too much Watching, by evaporating the Moiſture of the Body, renders it thin and dry, and introduces Crudities, and weakens the Brain.

CHAP. V.

Of Motion and Reſt.

Q. WHAT is meant here by Motion? *A.* Motion here is taken for Labour and Exerciſe.

Q. What kind of Motion is beſt?

A. Walking, Tennis, Running, Riding; and it is beſt when it makes us perſpire freely; for ſuch a Motion excites the native Heat, and evaporates all crude Humours.

Q. What is the Reaſon we breath quicker upon Motion?

A. Becauſe the Blood, by the Action of the Muſcles, is driven with more Celerity to the Heart, by the Compreſſion of the Veſſels, and ſo, growing warmer, by a quicker Paſſage through the Heart, it irritates to a more frequent Reſpiration.

And then, becauſe ſuch a ſtrong Influx of the Spirits into the Nerves, that ſerve for this Action, cannot be perform'd, but it muſt be ſomething encreas'd in the Nerves ſerving to Reſpiration, eſpecially in thoſe of the Par Vagum, and becauſe, through the Continuance of Reſpiration, the Paſſage of the Spirits to the Brain is very eaſy, and becauſe this Nerve, above all, is very much compounded in its firſt Riſe, therefore it receives the Spirits.

Q. What is the fitteſt Time for Exerciſe?

A. The beſt Time is the Morning, with an empty Stomach; for, by this Means, if any Thing remains in the Stomach of the former Digeſtion, it will be carried off; but if we uſe Exerciſe upon a full Stomach, it will breed Obſtructions and corrupt Humours; and therefore Motion is thought hurtful ſoon after Dinner and Breakfaſt; and, in general, before the Digeſtion is over: Yet the Ancients uſed Exerciſe chiefly after Dinner; but their Cuſtom was the Reverſe of ours, for they made their chief Meal at Supper, and eat ſparingly at Dinner.

Q. Is not too much Motion hurtful; or is not a gentle Walk good after Eating?

A. Too much Motion is hurtful, becauſe it drys and weakens the Body, and diſſipates the Acid of the Stomach; but we may take an eaſy Walk after Meals, that the Food may ſit eaſier upon the Stomach.

Q. Is not Motion therefore neceſſary?

A. Moſt certainly; for it appears, by what has been ſaid, that it is neceſſary to preſerve Health; and if it is duly perform'd, our Health will be affected accordingly.

Q. What is the Effect of unreaſonable Reſt?

A. It generates bad Humours, it ſtuffs the Paſſages with Dregs, and renders us unactive.

Q. When is it proper to reſt?

A. After being tired, and when the Chylification is not wholly diſtributed.

CHAP. VI.

Of the Excretions and Retentions.

Q. WHAT do you underſtand by the Excretions and Retentions?

A. The Excretions are the Fæces of the Bowels, the Urine, inſenſible Perſpiration, the Menſes, and the Seed; for theſe being excreted in proper Time, and due Quantity, do much conduce to Health, otherwiſe they impair it.

Q. What is the Conſequence of too long Retention of the Fæces, and how ſhould they be found in a good State of Health?

A. The Fæces not being voided in due Time, occaſion Cholic Pains, and a ſtinking Breath, from the foul Steams ariſing to the Stomach and Mouth. In their natural State they are ſoft, and adhering; of a yellow Colour, not too ſtrong a Smell, and in Quantity nearly equal to the Food we eat.

Q. Of what Quality is the Urine in a good State of Health, and what is the Effect of its being too long retained?

A. The Urine, in its proper State, is of an amber Colour, of a moderate Conſiſtence, either without, or with, a Sediment, and that ſhould be white, ſmooth, and equal. The Quantity of Urine ſhould be in Proportion to our Drink; if too long retain'd, either thro' the Defect of the Kidneys, or Bladder, or that it is not ſeparated from the Blood in ſufficient Quantities, it cauſes the Dropſy, fainting Fits, ſleepy Diſorders, and the Palſey.

Q. What Detriment does the Body receive for Want of inſenſible Perſpiration?

A. Without inſenſible Perſpiration, the Skin grows foul, an Itching ariſes (as frequently happens in the Small-Pox) and alſo Scabs, Dropſy, and Fevers, *&c.* for inſenſible Perſpiration is perform'd by the Pores of the Skin, and by the Mouth; that we daily emit much Matter by inſenſible Perſpiration, appears from the Inſpection of the Breath in Winter Time, when it is condens'd into a Vapour as it paſſes out of the Mouth; alſo from its falling upon a Looking-Glaſs, which is preſently wet with a great Number of Drops; alſo, if we touch bright Tin, or any other poliſh'd Metal, with the Tip of a Finger, it will preſently receive a remarkable Moiſture; and if this be done by ſo ſmall a Part, in ſo ſmall a Time, how much may we not ſuppoſe it to evaporate from the whole Body in one Day's Time? But the Perſpiration does not appear to be ſo great as *Sanctorius* ſays he found it by Statics; for he will have the inſenſible Perſpiration to be greater than all the other Evacuations taken together; for, if what we eat and drink in one Day weighs eight Pounds, he ſays, that five will paſs off inſenſibly.

He alſo ſays, that the Urine of one Night is commonly eight Ounces, and Fæces four, but the inſenſible Perſpiration, at leaſt, forty Ounces; ſo that the Evacuation, this Way, is fifteen times more in one Night, than by Stool.

Q. What are the various Circumſtances that attend the Menſes?

A. Women in general have them from the Age of fourteen to fifty, unleſs they are with Child, or give Suck, in which Caſe they ceaſe. They uſe to flow every Month, or thereabouts, *i. e.* every 22 or 30 Days; and the Quantity ought to be proportioned to the Heat and Abundance of the Blood; for it cannot be confined to any limited Quantity, for in ſome they are more, in others leſs.

Nor do they continue an equal Time in all, for in ſome they laſt two Days, in others three or four, in others they are not over till the 6th or 8th Day.

They who have them in Exceſs, are weakened, and have fainting Fits; they fall into a Conſumption, *&c.*

They in whom they are ſuppreſs'd, become hyſterical, breath difficultly, grow pale, and have their Appetites deprav'd, *&c.*

Q. What Effects does moderate, or immoderate, Venery produce; and whom does it moſt agree with, and at what Time?

A. It agrees beſt with thoſe who are of a ſanguine and full Habit, and in the Morning after Sleep; and this conduces to Health; but immoderate Venery emaciates the Body, weakens the Head and Nerves, diſſipates the Spirits, and greatly ſhortens Life; but thoſe of a ſanguine Complexion, *&c.* may uſe it as before-mentioned, after the Digeſtion and Diſtribution of the Chyle, for then the Seed is more perfected, and more abounding.

CHAP. VII.

Of the Affections of the Mind.

Q. WHAT do you underſtand by the Affections of the Mind, and why are they neceſſary, and with whom do they agree?

A. That Impetus, or Motion of the Mind, that occaſionally happens to the Soul, which we call Affections, or Paſſions of the Soul, are various, which have eſſentially join'd with them a certain Alteration of the Blood, and of the Spirits in the Brain, becauſe the Soul is more affected by them than by the ſenſitive

Thoughts; ſome greater or more vehemently affecting; others lighter were neceſſary for the Preſervation of Life; for it is neceſſary that the Blood ſhould not always have the ſame Motion, but ſometimes greater, and ſometimes leſs, that ſo the Strength and Heat might be preſerved, or recovered, or rendered more active, and alſo that, being uſed to theſe Motions, we ſhould not be ſo eaſily hurt by the greater, or leſs Motion of the Blood and Spirits.

But all the Paſſions are not good, or bad, to all Perſons alike; for Joy is very good for melancholy Perſons, to whom Fear and Grief are hurtful.

Thus Anger is good for the Phlegmatic, that ſo their weak Heat may be corrected, but is hurtful to bilious Perſons.

Q. Whence ſpring theſe Affections of the Mind?

A. They ſpring chiefly from a certain Apprehenſion of Good or Evil, Preſent or Future, which produces a Variation in the Influx of the Spirits out of the Brain into the Nerves, and alſo in the Motion of the Blood, and other Parts, as I have before explain'd concerning the Spirits, in Phiſiology.

Joy, Envy, and Ill-will, ſpring from an Apprehenſion of preſent Good: Hope, and Love, from an Apprehenſion of ſome future Good: Grief, Sorrow, and Pity, from an Apprehenſion of preſent Evil: Fear, Shame, and Deſpair, from the Apprehenſion of future Evil.

Q. Which are the principal Paſſions of the Mind?

A. They are, Joy, Sorrow, Anger, Love, Hate, Envy, Hope, and Deſpair.

Q. What is Joy, and what Effects does it produce in the Body?

A. Joy is the Pleaſure we receive on Account of ſome Good we believe we have obtain'd: This principally conduces to Health, if it is moderate, as in this Affection the Spirits dart forth, as it were, willingly into all the Nerves, as well within the Brain, as without, eſpecially into the Nerves peculiar to the Heart, and the Conſtriction of the Veſſels, which has this further Effect, that the Blood is puſh'd forwards through the Body by a grateful Motion, and all the Parts, as it were, rejoice, being over-ſpread with a grateful Warmth.

But too much Joy is bad, and ſometimes hath been the Cauſe of ſudden Death, by too ſtrong an Irruption of the Spirits into the Fibres of the Heart; for if the Heart remains too long conſtricted, it does not give a Paſſage to the Blood, and ſo the Heat of the Heart is extinguiſhed, and the Blood near the Heart coagulated. Or elſe, when the Blood out of the Veins enters the Ventricles of the Heart with Violence, in too great a Quantity, and by being too much rarefied, by dilating them beyond Meaſure, it hinders the Influx of the Spirits into the Nerves that conſtrict the Heart, and thereby prevents the Expulſion of the Blood.

This Definition does not only comprehend the Joy we receive for the Good only that happens to ourſelves, but alſo for the Good, or Evil, that happens to others, according as their Good, or Evil, is grateful to us: Nor does it exclude the Joy we conceive from the imaginary Poſſeſſion of ſome future Good in Imagination; for ſuch a Thought is eſteem'd as a preſent Good.

Q. What is Sorrow?

A. Sorrow is the Pain we ſuffer for ſome Evil with which we believe ourſelves affected; in Sorrow the Spirits are faintly mov'd, both in the Brain, and in the Nerves, for which Cauſe they flow more faintly to the Nerves of the Heart, and do not give it a ſufficient Conſtriction for the due Circulation of the Blood.

Hence further, there is an Oppreſſion of the Breaſt, and, as it were, a Suffocation, from the Stagnation, or more ſluggiſh Motion of the Blood about the Heart, and Death enſues from the Coagulation of the Blood in the Veſſels: Hence the Pulſe is ſmall, the Face is pale, and the remote Parts of the Body are cold; the Eyes are ſunk, and all Vivacity is loſt, *&c.*

Q. What is Anger?

A. It is a Deſire of Revenge from the Apprehenſion of ſome Injury received. In Anger, the Spirits of the Brain are violently agitated and diſperſed, through the Paſſages of the Brain, into the Nerves: Hence the Eyes ſparkle, and are inflamed; in ſome the Forehead is wrinkled, and the Pulſe grows quicker and ſtronger; ſome turn pale in the Beginning of their Anger, grow cold, and ſhiver; theſe angry Perſons are the moſt dangerous, and they are thus affected, through Sorrow that they cannot have their Revenge, or that they fear the ill Conſequences of their Revenge; but when ſuch Perſons take their Revenge, by how much they are colder and paler at firſt, ſo much more are they afterwards inflam'd. Some again weep, when they cannot revenge themſelves in their Anger; either becauſe in ſuch, through Sorrow, the Pores of the Glands are ſhut up for Want of a ſufficient Inflation from the Spirits; and ſo the Vapours, that uſed to perſpire freely, are collected together in greater Quantities; or that the Blood, in Anger, being more ſwiftly and violently impelled on the lachrymal Glands, ſeparates a larger Portion of the Serum into the lachrymal Tubes.

Q. What is Love?

A. Love is the earneſt Deſire of an Object, which we endeavour to obtain as good and deſirable, and convenient. In Love the Blood, as well as the Spirits, both within and without

out the Brain, are agitated by a pleaſing Senſation, the Body grows warm, and the Pulſe becomes quicker and livelier, and often changing from the unequal Flow of Spirits out of the Brain, they impreſs various agreeable Ideas on the Mind; whence alſo proceeds thoſe various Motions and Glances of the Eyes, that of themſelves expreſs the Symptoms of Love.

Q. What is Hate?

A. The Averſion of a Thing, or Perſon, which we eſteem as hurtful, or offenſive to us.

Q. What is Envy?

A. Envy is Sorrow for the Good of another, together with a pleaſing Satisfaction for his Misfortune; it hath the ſame Effect on the Body as Joy and Sorrow.

Q. What is Fear?

A. Fear is a Depreſſion of the Mind, thro' the Apprehenſion of ſome great Evil; here the Blood circulates very irregularly, becauſe the animal Spirits are, as it were, ſtopp'd, or retarded, in the Brain; whence proceed a ſlow Pulſe, a Trembling of the Limbs, Chillineſs, cold Sweats, Paleneſs, and Unfitneſs for Exerciſe and Motion, and this to ſuch a Degree, that ſometimes Death enſues.

Q. What is Shame?

A. Shame is a ſtrong Opinion, or Apprehenſion of Scandal: In this Affection the Spirits flow likewiſe very unequally into the

Nerves, ſo that they are ſometimes, as it were, fix'd in the Brain, and then again flow out plentifully; ſo that, in Shame, the Face is pale, and then red alternately: It is certain that the Heart and Brain are greatly affected by Shame, becauſe it may keep the Heart too much conſtricted, or not enough to continue Life, and the Circulation of the Blood; whence it often cauſes Death.

Q. What is Hope?

A. Hope is the Deſire of future Good, as being difficult, yet poſſible to be obtain'd. This gives an agreeable Flow of Spirits, both within and without the Brain.

Q. What is Deſpair, and how does it affect us?

A. This is an Affection ariſing from the Apprehenſion of Good, which we judge impoſſible to be acquired. Here the Spirits being, as it were, impriſon'd in the Brain, do not ſufficiently conſtringe the Heart as they ought, but the Blood, as it were, ſtagnating in the Heart, and the neighbouring Veſſels, creates a Senſe of Dread and Horror.

Q. Do not the Affections of the Mind act greatly on the Brain, the Motion of the Spirits, and the Motion of the Heart?

A. It appears, from what has been ſaid upon the Affections of the Mind, that they affect the Brain, and the Influx of the animal Spirits, and, conſequently, the Motion of the Heart, and the Circulation of the Blood.

Q. Why hath the Soul no Power, or very little, to govern theſe Paſſions?

A. Becauſe, as has been mentioned before, they are chiefly perform'd by the Motion of the Heart and Blood, which depends upon the Flux of animal Spirits from the Cerebellum; eſpecially from the Nerves of the Par Vagum, which are not govern'd by the Soul. This Flux is therefore involuntary, as I have frequently affirm'd; nevertheleſs it is of ſuch a Nature, that it changes the Motion of the Heart upon a very ſlight Commotion of the Spirits in the Brain; partly becauſe the Paſſage of theſe Nerves is more open, and their Filaments more numerous at their firſt Origin; and partly becauſe there is a mutual Communication and Tranſmiſſion of Spirits between the Cerebrum and Cerebellum; for the animal Spirits being mov'd in the Cerebrum, excite the Spirits in the Cerebellum, and protrude them into the Nerves of the Par Vagum; and hence is the Cauſe why in Love, Joy, and other Paſſions of the ſame Nature, the Spirits flow out of the Cerebrum, through the Nerves of the Par Vagum, in greater Plenty, which are diſtributed for the Uſe of the other natural Functions.

In Hate, the Soul checks them in the Brain; for whilſt the Soul loves, it unites with the animal Objects, or Deſires, to cleave to the Ideas of the beloved Object; from whence the Thoughts ariſe calm and joyful, and the Soul entices forth the Spirits to preſerve ſuch Ideas; by which the Soul is more ſtrongly affected by them; when it further happens that the animal Spirits being mov'd in the Cerebrum, ſucceſſively yield other Spirits from the Cerebrum to the Cerebellum, and from that ſends them into the Nerves of the Par Vagum, by which the natural Actions are encreas'd. But, in Hate, when the Soul does leſs deſire to form the Ideas of the Object, and is not affected by them, then the Spirits in the Cerebrum and Cerebellum are more ſparingly diſtributed into the Nerves, which produce ſuch Changes in the Body, as are the Reverſe of Love.

Q. How are the Spirits affected?

A. The Motion of the Spirits are affected in the Brain, as well by external as internal Senſations (whether by the pure Knowledge of the Soul, which happens without the Aſſiſtance of the Spirits, and conſequently is not to be conſider'd as a medical Enquiry, nor is manifeſtly ſubject to our Knowledge, I do not here enquire) in which, by a ſtrong Impreſſion of the Spirits of any Object in the Brain, it is repreſented more clearly to the Soul.

For as ſoon as the Soul perceives any Good or Evil proceeding from this or that Object, preſently the Imagination is augmented, thro' the greater Influx of Spirits confirming thoſe Impreſſions, and forming others, by which it diſcovers the Truth of that Good or Evil, by which the Motion of the animal Spirits in the

Cerebrum being varied, the Motion of the Spirits in the Cerebellum is alſo varied; to which Mutation the Diverſity of external Objects conduces; from which various Paſſions proceed: Nevertheleſs the ſame Object may at different Times produce different Operations in the ſame Subject.

Q. Are not certain other Affections reducible to this Claſs?

A. Yes, many, which produce the like Effects in the Body, and of which the ſame Account is to be given: For Inſtance, ſuch is Ill-will, or Malevolence, which is a certain Averſion and Alienation of one Perſon from another: Pity, which is Pain for the Evil of another. But he that would know more of this Subject, muſt apply to Philoſophy.

Q. How do the Paſſions of the Mind differ in themſelves?

A. The Paſſions of the Mind do not really differ in themſelves, nor from the other Senſations; for, in Reality, it is the Soul itſelf that ſeeks Good, and ſhuns Evil; but only in one Circumſtance it is accompanied with a greater and more violent Influx of the Spirits; and, in the other, with a leſſer and ſlower. Indeed almoſt every Senſation depends on the Influx of the Spirits, and the Alteration of the Blood.

Q. May not the Paſſions of the Mind be alſo called external Actions?

A. Although the Paſſions of the Mind are internal, animal Actions, they may ſometimes be called external, conſidering that, by their Means, the Soul is affected, and ſuffers from external Objects.

PATHO-

PATHOLOGY:

THE
THIRD PART
OF THE
RUDIMENTS of PHYSICK.

CHAP. I.

Of the Things contrary to Nature.

Queſtion.

WHAT are the Things contrary to Nature?

A. The Things contrary to Nature, are thoſe Things that are injurious to the natural Conſtitution of the living Body.

Q. How many Things are reckoned contra-natural, as the Heads under which all the others are reduced?

A. They are three: A Diſeaſe; the Cauſe of a Diſeaſe; and the Symptoms; under which Heads every Thing contrary to Nature is comprehended.

Q. Do not Contraries better explain each other, by being compared together?

A. Moſt certainly.

Q. Would it not then anſwer our Purpoſe better to ſay ſomething of the Things agreeable to Nature, before we treat of the Contra-naturals?

A. You are in the Right; for the eſſential Differences of a Diſeaſe proceed from thence; and thus the Things agreeable to Nature, and contrary to Nature, will explain each other: Therefore I ſay, that the Things agreeable to Nature, are alſo three (the ſame in Number with the Contra-naturals) *viz.* Health; the Cauſe of Health; and the Effects of Health.

Q. What is Health?

A. Health is a peculiar Structure of the living Body moſt agreeable to Nature, by which all the Actions are duly and mechanically performed.

Q. Ought not all the Actions to be rightly and mechanically performed?

A. That any Perſon may be ſaid to be in Health, he ought to perform all his Actions rightly; for if there be a Defect in the leaſt, he is no longer in Health: For Health is a certain Good to the Body; but a Good that depends on the entire Cauſe; and the oppoſite Ill depends on every ſingle Defect.

Q. What is it you underſtand here by Conſtitution?

A. The Conſtitution is ſomething reſulting from the due Temper, Formation, and Union, of all the Parts of the Body, by which we are rendered fit to perform all our Actions rightly.

This cannot be taken for the Union of the Soul with the Body; for this is in ſick Perſons, as well as to thoſe in Health, where, neverthelefs, the Actions of the Body cannot be duly perform'd.

Q. What do you mean by the Actions being rightly perform'd, as here underſtood?

A. I mean, that every one in particular ſhould perform his Actions agreeable to his natural Conſtitution; but this cannot be univerſally the ſame in all Perſons: As for Inſtance, the Tone of the Stomach, and the Eyes of an old Man, he does not digeſt, and ſee, ſo perfectly as a young Man may be ſaid to do; yet, with Regard to both the old and young Man, they may be in Health, becauſe it is ſuch as the natural State of Age requires and permits.

Q. What is the Subject of Health?

A. The Subject of Health, is the living Body, and its Parts, both ſolid, and fluid; for they alone are ſaid to be healthy.

Q. Does not Health conſiſt in a certain Mean, which is neither ſtrictly homogeneous, nor altogether uncompounded.

A. Health conſiſts in a certain Mean, which is not abſolutely the ſame in every Individual, but hath its Latitude and Varieties; for every Conſtitution hath its Medium, agreeable to which Health may be divided; ſo that the Phlegmatic hath one State of Health, the Bilious another; the young Man one, the Old another; according to the ſeveral Varieties of Temperaments and Conſtitutions, and the Proportion of Health in this or that State.

There is alſo one Health of a ſimilar Part, ſo far as it is not organical; another of an organic Part, as it is not ſimilar; for the firſt, for its Health, requires a due Temper, and Union of Particles; the latter, a due Conformation, *i. e.* a juſt Magnitude, Number, Figure, and Poſition, beſides the due Union.

Laſtly, there is one Health of the Whole, another of a Part only; for more Things are requir'd for the Health of the Whole, than of a ſingle Part; for a Man may be ſound, or have Health, in one Part, at the ſame Time he is ſick in another.

Q. What is therefore requir'd for the Health of the whole Body?

A. For the Health of the whole Body, there is requir'd a due Temper of all the Parts, a due Formation, and a due Union;

and, theſe being poſſeſs'd, all the Actions are rightly perform'd.

Q. May the Body be ſaid to be healthy, when it hath a due Temper of all the Parts, or a due Formation?

A. It appears, from what has been ſaid, that it may not; as more is required to Health, than a due Temper, or a due Formation; for a Man may have a due Temper, and not be healthy: For Inſtance, if he has not a due Formation, but ſome Part exceeds in Magnitude, Number, Figure, or Poſition. And in like Manner a Man may have a right Formation, and not a due Temper.

Q. What do you underſtand by the Cauſe of Health?

A. The Cauſe is underſtood from what has been already ſaid, *viz.* a due Temper of the firſt Qualities in the Body; a due Formation; and the Union of all the Parts of the Body.

Q. What do you underſtand by the Effects of Health?

A. The Conſequence of Health is, when the Actions, the Excretions and Retentions, and the ſimple Affections of the Body, are all in their proper State.

CHAP. II.

Of a Diſeaſe.

Q. WHAT is a Diſeaſe?

A. A Diſeaſe is præternatural to the Conſtitution of the living Body, in which all the Actions of the Body are not duly perform'd.

Q. What do you underſtand by Conſtitution?

A. In the ſame Manner as I explain'd a Conſtitution of Health; ſo here again, by Conſtitution, ought to be underſtood ſomething reſulting from an irregular Temper, Formation, and Union of the Parts, in which ſome Action is ill perform'd, or is not well proportioned, and we are render'd unfit to perform all our Actions rightly, or duly, according to the natural State of every particular Perſon (allowing for proper Exceptions.)

Q. Is it requir'd, to form a Diſeaſe, that all our Actions ſhould be impair'd?

A. It is not ſaid, in which all the Actions, but in which ſome are impair'd, becauſe it is not required, to form a Diſeaſe, that all our Actions ſhould be impaired, but one alone is ſufficient; for the Ill depends on every ſingle Defect.

Q. What do you mean by (allowing for proper Exceptions?)

A. It excludes the Conſtitution of old Men, and young Children; for they do not duly perform their Actions; but this is according to the Courſe of Nature, at ſuch an Age.

Q. What is the Subject of a Diſeaſe?

A. The Subject of a Diſeaſe, is the living Body, its ſolid, and fluid Parts; and it is theſe that are called Diſtemper'd.

Q. Is not the Soul alſo the Subject of a Diſeaſe?

A. The rational Soul is created perfect, but if its Actions ſhould be impaired, it muſt proceed from ſome Defect of that Body, or Organ that it makes Uſe of to perform its Operations.

Obſerve, That I do not treat of ſimilar Diſeaſes proceeding from an irregular Temper, nor of organic Diſeaſes from an undue Formation, nor of the Union deſtroy'd; becauſe they properly belong to Surgery, which Art profeſſes the Cure of Wounds, Ulcers, Fractures, and Fiſſures, *&c.*

CHAP. III.

Of a univerſal, and of a particular Diſeaſe.

Q. HOW are Diſeaſes divided from the Conſideration of the Place affected?

A. One Diſeaſe is univerſal, another is particular; one is proper, another is common; one is internal, another is external.

Q. What is a univerſal Diſeaſe?

A. A univerſal Diſeaſe, is that which affects the whole Body, as a Fever, a Chachexy, an Anaſarca, *&c.*

Obſerve, That it is not required in a univerſal Diſeaſe, that all the Actions, both animal, and natural, ſhould be impair'd; altho' it be difficult to hurt one, and not the other, becauſe of their mutual Dependance.

Q. What is a particular Diſeaſe?

A. A particular Diſeaſe, is what affects only a Part of the Body, as the Hydrocephalus, the Pleuriſy, *&c.*

Q. What is an external Diſeaſe?

A. That which is confin'd to the external Parts of the Body.

Q. What is an internal Diſeaſe?

A. An internal Diſeaſe, is that which is confin'd to the internal Parts of the Body; as the Gravel, the Bloody-flux, *&c.*

CHAP. IV.

Of Diſeaſes contagious, and not contagious.

Q. WHAT is a contagious Diſeaſe?

A. A contagious Diſeaſe, is that which is propagated from one Body to another by Contagion; as the Plague, the Leproſy, the Pox, the Pthſick, the Madneſs of a Dog, the Itch, *&c.*

Q. What is Contagion?

A. Contagion is a Corruption, or certain Effluvia emitted from a diſtemper'd Body, diſtinct from the Seed, the Aliment of the Fœtus, and the Milk, by which a Diſeaſe may be communicated from one Body to another.

OBSERVATION.

Contagion is the Seminary of a Diſeaſe, and it ought to contain its whole Force and Energy, and a great Power, in a very ſmall Bulk: And it happens that, for Want of this, every Diſeaſe is not contagious; notwithſtanding which, there is ſcarce any Diſeaſe without ſome Effluvia peculiar to it.

Q. Why, in the Definition, do you ſay, diſtinct from the Seed? And alſo, Why from a diſtemper'd Body, *&c.*

A. I ſay, diſtinct from the Seed, firſt, becauſe a Diſeaſe that is given with the Seed, in the firſt Formation, is properly call'd an hereditary Diſeaſe; but, if communicated to the Fœtus with the Nouriſhment, or given to an Infant with the Milk, then it is call'd Connutritious, or what is brought on by Nutrition.

Q. In what Manner is a Diſeaſe call'd Infectious, from Contagion?

A. Not becauſe it ought firſt to be produc'd by Contagion (for the Plague, inflicted by Heaven, is a contagious Diſeaſe, though not produced originally by Contagion) but becauſe it hath the Power to produce the Contagion itſelf, and, by Means thereof, communicate itſelf from one Body to another.

Q. Is not Contagion always taken for the ſame as Corruption?

A. Contagion is not the ſame Thing as Corruption; but this laſt is of a more extenſive Nature, for there are ſeveral Things of a deſtructive Nature, that are not contagious: For Inſtance, certain Poiſons from Animals, Plants, and poiſon'd Arrows; or from dead Carcaſſes, and other corrupt Bodies, which are not properly call'd contagious, as they do not flow from any ſick Body, nor are produc'd in it by a like Diſeaſe.

Q. Does all Contagion ariſe from Putrefaction?

A. Contagion does often ariſe from Putrefaction, but not in all Caſes; for ſome Things in a Body may be ſo exalted, and receive ſuch a Figure by divers Ways, without Putrefaction, that they may have the Force of Contagion; for the Effects of a peſtilential Contagion is found to conſiſt in a certain Set of Particles, which have been compared, in Sharpneſs, to the Shape of Penknives *.

Q. May not Contagion be generated in a living human Body?

A. It may, and that from the Blood, the Seed, and other Parts; from whence it appears to be very difficult, and, indeed, impoſſible, to ſay certainly whether a contagious Diſeaſe is produced by external Contagion; or, more probably, from internal Cauſes.

Q. Is not a Contagion emitted various Ways from one Body to another?

A. Contagion is emitted various Ways from a ſick Body: For Inſtance, by the Pores of the Skin, with the Breath, with the Spittle, the Fæces, the Urine, Putrefaction, *&c.* It enters the Body either with the Air we breath, or by the Pores of the Skin, and that in various Ways; for one Contagion is of ſuch a Nature, that it is communicated only by immediate Contact, as that of the Bite of a mad Dog; another is transferr'd by Cloaths,

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* Contagious Particles have been termed very acute, from whence ariſes the Baldneſs of this Compariſon: But the Doctrine of Effluvia and Contagion have been treated of ſo very accurately, by many late Authors, it would be needleſs to make further Comment on it in this Place.

Linnen, *&c.* as the Itch, and the Leproſy: Laſtly, another is propagated at a great Diſtance, as the Plague, *&c.*

Q. Is it enough for a Contagion to take Effect, that it enters any Body, or is there ſomething further neceſſary?

A. The Agent does not act on every Body, but ſuch only as are fitly diſpos'd; ſo that there is moreover required a Diſpoſition in that other Body, that it may effectually penetrate it, and be agitated by it; and, without this Diſpoſition, it takes no Effect; ſo that it often happens, that a Man may receive the Contagion into his Body, and be no Ways affected with the Diſeaſe, but it may be expelled again by Perſpiration, Urine, Spittle, *&c.* Alſo, ſometimes, it may remain a long Time in the Blood, without producing any Struggle, becauſe theſe Miaſmata, or contagious Vapours, may be deſtin'd to infect the denſer Parts, and not being able to penetrate them, they fly off eaſily through the Pores; ſo there may be others fitted for ſofter Parts, and theſe cannot infect the denſer ones.

But where the Diſpoſition of the Body favours (that is) where there is a Conformity, as to Magnitude, Figure, *&c.* as well in the Pores of the Skin, as the Particles of the Blood, and the other Parts of the Body, there the Contagion immediately inſinuates itſelf, and produces many like Corpuſcles in that Body: And hence the Reaſon is to be deduc'd, why *v. g.* the Contagion of the Phthiſic is ſooner propagated from Brother to Brother, and from one Relation to another, and from the Lungs to the Lungs, ſooner than to one who is no Relation; or, why it does not exert its Power equally on the Skin, or Liver, of another Perſon, as upon his Lungs; for the Bodies of Relations uſe to be more like, with Reſpect to the Pores, and their Particles; and the ſame Reaſon holds, with Reſpect to the ſimilar Parts of different Perſons, as of the Lungs of *Peter*, and the Lungs of *Paul.* Whence the Miaſmata from a phthiſical Body, produce the Phthiſic; thoſe of a Dyſentery, the Dyſentery, *&c.* from their Similitude with the Pores of the Parts.

Obſerve, That one Body may infect a great many, and yet remain equally infected.

Q. What is a Diſeaſe without Contagion?

A. That which is not propagated by Contagion from one Body to another, as a Wound, or Swooning, *&c.*

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* This is metaphorical, and means nothing more than the Lungs of two different Perſons, of ſimilar Parts and Conſtitutions.

CHAP.

CHAP. V.

Of pandemical, epidemical, endemical, and ſporadic Diſeaſes.

Q. WHAT are common, or pandemical Diſeaſes?

A. They are ſuch, when Diſeaſes of the ſame Kind, at the ſame Time, invade ſeveral Countries.

Q. What is an epidemical Diſeaſe?

A. It proceeds from a common Cauſe, and invades many Perſons in one Place, and at the ſame Time.

Q. What is an endemical Diſeaſe?

A. It is a Diſeaſe peculiar to a Country, ariſing from a common Cauſe; as the Scurvy in *Holland*; the Rickets in *England*; the Plica in *Poland*.

Q. What are ſporadic Diſeaſes?

A. When Diſeaſes of various Kinds, at the ſame Time, and in the ſame Country, invade the People, as the Pleuriſy, and Opthalmy, or Inflamation of the Eyes.

That theſe Things may appear plainer, I ſay, that ſome common Diſtempers are called Pandemial; and they are Diſtempers of the ſame Kind which invade many Perſons at the ſame Time, and in the ſame, or in ſeveral

Countries; Of the Pandemial, one is epidemical, the other endemial.

An epidemical, or popular Diſeaſe, is a Diſeaſe ariſing from ſome common Cauſe, not confin'd to any particular County, but invading many Perſons at one Time and Place; as the Plague, Quinſey, and epidemical Pleuriſy.

Obſerve, That it is ſaid to be confin'd to no Country, which is contrary to endemial Diſeaſes.

Obſerve ſecondly, I ſay, from a common Cauſe, ſuch as the State of the Air, and the Weather, alſo a bad Diet.

An endemial, or Country Diſeaſe, is a Diſeaſe ariſing from ſome common Cauſe, and peculiar to ſome certain Country; as the Scurvy to *Holland*; the Pox to *India*; ſwoln Throats, or the Bronchocele, to the *Alps*; the Struma, or King's-Evil, to *Spain*. The common Cauſe here, is the Air, the Situation of the Place, the Water, the Diet that is peculiar to this or that Country.

Sporadic Diſeaſes (which Term ſignifies ſcatter'd about, as being rife in many Places) are diſeaſes of various Kinds, that invade many Perſons at the ſame Time, and in the ſame Country, as the Pleuriſy, and Opthalmy; which, altho' they are both Inflammations, are ſaid to be of different Kinds, by Phyſicians, who take that Difference from the Part affected, and the different Kind of Symptoms.

CHAP. VI.

Of a ſhort, and a long Diſeaſe; of the acute, and not acute; according to the Time of its Duration, a Diſeaſe is termed either long, or ſhort.

Q. WHAT is a ſhort Diſeaſe, ſometimes called Acute?

A. A ſhort Diſeaſe, is one that comes to a Period ſoon, as the Ephemera, or Fever of one Day; the burning Fever.

Q. What is a long Diſeaſe, ſometimes call'd Chronical?

A. It is one that does not ſoon come to a Period; as a Quartan Ague, Dropſy, a Palſy, and an Epilepſy; that is, ſpeaking, not of the Fit alone, but of the whole Time of the Epilepſy; from which in this, as in all other Diſeaſes, the Length is taken.

N. B. From the Length of Time, and the Manner of its paſſing through it, a Diſeaſe is alſo called acute, or not acute.

Q. What is an acute Diſeaſe?

A. It is one that comes to a Period in a ſhort Time, attended with Danger; therefore it is a Species of ſhort Diſeaſes; for every acute diſeaſe is ſhort, but not the Contrary; becauſe every ſhort diſeaſe is not acute, as the Ephemera, or day Fever, is ſhort, but without danger.

Q. How many Diſtinctions do you make of acute Diſeaſes?

A. They are diſtinguiſhed into four Degrees of Acuteneſs; firſt, the extreme acute, which ends the third Day, or the fourth, at fartheſt; as the extreme acute Apoplexy; alſo the peſtilential Fever. Secondly, the very acute, which laſts, at moſt, ſeven Days, as the Cauſus, or burning Fever. Thirdly, the acute only, which laſts twenty Days in its longeſt Continuance; as the continual Fever, without Burning. Fourthly, the degenerate acute, which, ſometimes, continues to the 40th Day; but the two laſt Species ſeem improperly call'd Acute, becauſe they are not ſhort Diſeaſes.

Q. What is a Diſeaſe, not acute.

A. A Diſeaſe not acute, is not attended with Danger; nor does it come to a Period in a ſhort Time: Of this Sort is every Diſeaſe of long Duration; and alſo every one that is not attended with Danger.

CHAP. VII.

Of benign and malignant Diſeaſes.

Q. WHAT is a benign Diſeaſe?

A. That Diſeaſe is call'd benign, that hath its uſual Symptoms, as the tertian, or burning Fever, having their common Symptoms.

Q. What is a malignant Diſeaſe?

A. A malignant Diſeaſe, is that which hath more dangerous Symptoms than common.

Q. What is the *Mos Morbi*, or Mode of a Diſeaſe?

A. The *Mos Morbi*, from which a Diſeaſe is ſaid to be *boni aut mali moris*, is a Condition attending a Diſeaſe, by Reaſon of the Symptoms appearing more dangerous, or favourable.

Q. Whence does the *mali moris*, or ill Condition, proceed.

A. A Diſeaſe is then ſaid to be *mali moris*, when the peccant Matter hath ſome unuſual Malignity; that is, the Matter is more aduſt, or more putrefied, *&c.* But this does not proceed from the Weakneſs of the Body affected, although from its Weakneſs, or Diſpoſition, the Symptoms may ariſe more than commonly dangerous; as we, ſometimes, ſee an ordinary Fever attended with a Syncope, and violent

Vomitings; ſo that it may be then rather called a great Diſeaſe, but ſo only with Reſpect to the Patient.

Q. How does a malignant, differ from a contagious Diſeaſe?

A. I ſay, that they mutually differ in themſelves; for the Plague is both contagious and malignant; but the malignant may be not contagious: As for Inſtance, a Tertian having Symptoms more violent than uſual, and yet not contagious.

Q. Is not every contagious Diſeaſe malignant?

A. By no Means; for a diſeaſe may be contagious, and not malignant; as a Species of the Itch.

CHAP. VIII.

Of great and little Diſeaſes.

OBSERVE, from its Quantity, a diſeaſe is called Great, or Little.

Q. May not the Magnitude of a diſeaſe be conſidered two Ways?

A. It may; Firſt, by Compariſon with the Patient; and, in this Way, a little diſeaſe, in it ſelf, may be called Great: Thus a common Fever, or any other ſlighter diſeaſe, if it is conſidered with Regard to an Infant, or a weak Man, is generally reckoned Great. Secondly, it may be called Great, conſidered in it ſelf.

Q. What is a Diſeaſe, in it ſelf Great?

A. A Diſeaſe that is properly called Great in it ſelf, is one that is apt to ſink the greateſt Strength, and occaſion Death.

Q. From what Origin is ſuch a diſeaſe called Great?

A. This Magnitude proceeds from a double Cauſe, *viz.* from the great Uſefulneſs of the Part; as ſuppoſe the Brain, the Heart, or Stomach, *&c.* are affected; or that the Diſeaſe is extenſively, or intenſively great; as ſuppoſe an Inflamation (which is not neceſſarily a great Diſeaſe) ſhould ſeize the whole Arm, or Leg; or if there ſhould be an Inflamation only in one Hand, or a Part of it, but ſo violent, as to threaten a Mortification.

Q. Is a great Diſeaſe the ſame as a violent one?

A. It is not; becauſe the latter, beſides its Magnitude, hath alſo a certain Impetus, and Velocity.

Q. What is a little Diſeaſe?

A. A little Diſeaſe, is one that is not apt to depreſs the Spirits, and occaſion Death, as the Fever of a Day, the Teneſmus, *&c.*

CHAP.

CHAP. IX.

Of a primary Diſeaſe, i. e. *by Idiopathy, and of a ſecondary Diſeaſe, or by Sympathy.*

Q. WHAT is a primary Diſeaſe, or a Diſeaſe by Idiopathy?

A. A Diſeaſe that is properly primary, or by Idiopathy, is one that has no Dependence on another in the ſame Body, and therefore requires its own Cure; as the Obſtruction of the Kidnies by a Stone.

Q. What is a ſecondary Diſeaſe, or ſymptomatical?

A. A ſecondary Diſeaſe, by Agreement, or Sympathy of Parts, is a Diſeaſe that depends on another in the ſame Body; and therefore does not require its own Cure; as the Delirium that follows the Inflammation of the Diaphragm; for the Delirium depends upon that Inflammation, and ceaſes with it, and does not require its own Cure.

Q. What do you underſtand by Sympathy?

A. Sympathy, or Agreement, by which the Parts are ſaid to ſuffer by Sympathy, or Agreement, is only a mutual Suffering of the Parts, one affecting the other.

Q. How many Ways may this Agreement be diſtinguiſhed?

A. Two; firſt, when a Part is corrupted by a corrupted Part. Secondly, when a Part is affected by its Nerves being wounded: The firſt is call'd *Affectus ejuſdem*; the ſecond, *Affectus diverſi*; that is, either a general, or particular Affection of the Parts.

CHAP. X.

Of hereditary Diſeaſes, and of thoſe not hereditary.

Q. WHAT is an hereditary Diſeaſe?

A. An hereditary Diſeaſe, is a Diſeaſe communicated from Parents to their Children, through the Fault of the Semen, or the bad Nouriſhment of the Fœtus.

Q. May not a Diſeaſe, in ſome Caſes, be hereditary, though the Parents never had it?

A. It is not neceſſary that the Father and Mother ſhould ever have a Diſeaſe they received from their Parents; becauſe they may, by a contrary Method of Living, reſtrain and prevent an hereditary Diſeaſe; but having a Diſpoſition to it from their Progenitors, or from ſome other Cauſe, they may communicate it to their Children.

with the ſeminal Spirit, and ſo contaminate the Ova, out of which the Fœtus is form'd.

Laſtly, it is not doubted, but that an hereditary Taint may be given to the Fœtus with the Aliment, or with the Mother's Blood: For the Chyle, which nouriſhes the Fœtus, is made in the Mother's Body, and paſſes thro' it; and the Blood of the Mother gives Growth to the Womb; and, tho' it does not nouriſh the Fœtus; yet, by its continual Vapours affecting the Cavity of the Womb, and the Placenta, it infects the Blood, and Chyle, of the Fœtus.

Q. What Diſeaſes are moſt commonly obſerved to be hereditary, though we cannot poſitively aſſert, that any Diſeaſe is actually ſo?

A. Many Diſeaſes are hereditary; but theſe are the chief; the Gout; the Stone; the Apoplexy; Melancholy; and the Phthiſic: But it is very doubtful to aſſert, when we ſee Perſons affected with any of theſe Diſeaſes, that they certainly derived them from their Parents, becauſe they may ariſe from their own proper Defects; therefore we only judge by Suſpicion, when we pronounce any Perſon to be affected with an hereditary Diſeaſe; becauſe we have heard their Parents were troubled with the ſame Diſeaſe.

Q. What are Diſeaſes not hereditary?

A. They are ſuch as cannot be propagated from Parents to their Children, as a Wound.

CHAP. XI.

Of the ſeveral Stages of a Diſeaſe; of a Paroxyſm, a Period, a Type, and of a Relapſe.

Q. WHAT is the Stage of a Diſeaſe; whence is it taken; and how many are there?

A. The Stage of a Diſeaſe, is that Portion of Time in which any remarkable Change is obſerved in Diſeaſes. This Change is reckoned according to the different Activity of the morbific Cauſe in the Body, and the Contrary, which is further known from the Increaſe, or Decreaſe, of the Symptoms.

Q. What is the Time of the entire Diſeaſe; how many diſtinctions hath it; and when are they to be reckon'd?

A. The Time of the entire diſeaſe, that diſtinguiſhes the whole Courſe of it, is divided into four Stages, *viz.* the Beginning, the Encreaſe, the State, or Height, and the Declination. The univerſal Beginning of a diſeaſe, is when a diſeaſe begins to act, and when, as yet, the Actions are not much injur'd. The univerſal Encreaſe of a diſeaſe, is when a diſeaſe injures the Actions, but not in the higheſt degree. The univerſal State of the diſeaſe, or its higheſt Acme, or Point, is when the Diſeaſe injures the Actions in the higheſt Degree. The univerſal declination of a Diſeaſe, is when a Diſeaſe no longer injures the Actions.

Q. Is not the Beginning of a Diſeaſe differently taken by the Phyſician, and Vulgar?

A. The common People call the firſt Hour, or Day, in which they feel the Diſeaſe, the Beginning; but we make the Beginning contain ſeveral Days; but this only in Diſeaſes of a longer Duration.

Q. Hath not every Diſeaſe its four univerſal Times, or Stages?

A. Theſe four are always reckoned in a Diſeaſe, whether it tends to Life, or Death; whether it is oppos'd by Medicines, or not; but theſe Stages are often very unequal; becauſe one entire Diſeaſe finiſhes its Courſe, and, conſequently, its univerſal Stages, ſooner than another, eſpecially according to the good, or bad Method of their Cure.

But, vulgarly ſpeaking, about the Stage of a Diſeaſe; that is, by meaſuring it according to the uſual Duration of this, or that Diſeaſe, we may ſay, that theſe four Times, or Stages, are not found in every Diſeaſe; but that ſome are cured in the Beginning, in the Increaſe, or in the critical State of the Diſeaſe; others receive their Cure from Medicines in the Beginning, or Increaſe of the Diſeaſe.

Q. Do any die in the general Declination of a Diſeaſe?

A. None die in the Declination of a Diſeaſe; at leaſt, not of the Diſeaſe, that is in the Declination; but they may die of ſome other Diſeaſe complicated with it, or ſupervening, or for Want of the neceſſary Powers of Life, as in old Age.

Q. What is the particular Stage of a Diſeaſe?

A. It is the particular Time of a Diſeaſe, that the Paroxyſm laſts.

Q. What do you mean by Paroxyſm?

A. A Paroxyſm is the Time that the Diſeaſe is heightened, in Diſeaſes that invade by Fits. So the Paroxyſm of the tertian Fever, is that Space of every third Day, in which the Fever grows ſtronger: And it has its Beginning, Increaſe, State, and Declination, according to the Degree of the Fever's Violence.

Q. What is the Period of a Diſeaſe?

A. The Period, is the Time of the Augmentation, and Remiſſion in Diſeaſes, that invade by Fits; or the Time from the Beginning of one Paroxyſm, to the Beginning of the next. Whence the Paroxyſm differs from the Period; becauſe the Paroxyſm is only Part of the Period, or a particular Time comprehended in it. Thoſe Diſeaſes are ſaid, by Phyſicians, to keep their Period, which return at ſtated Times, as the quotidian, tertian, and quartan Fever; thus we ſay, a Diſeaſe keeps a tertian Period, or a quartan Period, *&c.*

Q. What is the Type of a Diſeaſe?

A. The Type, is the Order of encreaſing, and remitting in a Diſeaſe, the Form, or Manner of the Period.

The Conſumption, and Palſey, have no Period, or Type, for they afflict continually.

Q. What is a relapſed Diſeaſe, and why muſt it return in a ſhort Time?

A. It is a Diſeaſe returning in a ſhort Time after it was cured: I ſay, in a ſhort Time, becauſe, if a long Time after the Cure of any Diſeaſe, a Perſon is attack'd with the like Diſeaſe, we do not reckon it the ſame, but a different one; and therefore cannot be called a Relapſe.

CHAP. XII.

Of the Cauſe of a Diſeaſe, and its ſeveral Kinds.

Q. WHAT is the Cauſe of a Diſeaſe?

A. The Cauſe of a Diſeaſe, amongſt Phyſicians, is ſomething præternatural affecting the Body.

Q. How many Cauſes are there?

A. There are many; but they are ranged under three general Heads by Phyſicians, *viz.* 1. The Procatarctic. 2. The Antecedent, and the Conſequent, or containing Cauſe.

Q. What is the procatarctic Cauſe?

A. The procatarctic Cauſe is evident to all Perſons; that is the Cauſe to which any Perſon, of an ordinary Capacity, may impute the Diſeaſe, which is either internal, or external.

The internal procatarctic Cauſes are, all the Affections of the Mind, as Anger, Grief, *&c.* Thus the Vulgar uſe to impute the Death, or Sickneſs, of any Perſon, to his Exceſs of Joy, or Anger, if they are ſeized ſoon after it.

The external procatarctic Cauſes are, a Sword, a Stone, a Knife, a Stick, the Air, Diet, *&c.* from which the Body receives ſome Injury.

Q. What is the antecedent Cauſe, and why is it ſaid not to be evident to every one?

A. The antecedent Cauſe, is the Cauſe not evident to every Perſon, and which, being moved, does not preſently take away the Diſeaſe. Such is the Abundance of the Blood, of an Inflammation, which it hath cauſed in any Part; for the Quantity being leſſened by Væneſection, the Inflammation does not immediately ceaſe; for the Extravaſation of the Blood may ſtill continue in the Part, and remains the containing Cauſe.

Such is the Load of Phlegm in the Stomach (that is, in a different Reſpect) the Cauſe of the Apoplexy, which it produces of itſelf, by ſending ſome Parts into the Blood;

and the Head, for that being remov'd from the Stomach by a Vomit, that Part of the Phlegm may remain, that obſtructs the Paſſages of the Brain.

N. B. Therefore the antecedent Cauſe is the ſame as the Cauſe which favoured the containing Cauſe.

Q. What is the containing Cauſe?

A. The containing Cauſe, is that which being taken away, the Diſeaſe immediately ceaſes: Such is the extravaſated Blood in an inflam'd Part, of the Inflammation that it cauſed there.

Q. Can the containing Cauſe be alſo the procatarctic, or the antecedent Cauſe?

A. This may be alſo the procatarctic Cauſe; thus a Thread binding an Artery, or a Bit of Bread too haſtily ſwallowed, ſticking in the Gullet, is the Cauſe of an organic Diſeaſe, by altering its Figure and Dimenſions *ex vitiata figura*, for theſe Parts require Cavity; but this is evident to every Perſon.

But the containing Cauſe cannot be the antecedent at the ſame Time, and of the ſame Diſeaſe; becauſe the ſame Cauſe ought to be ſuch as the direct Cauſe itſelf: Here the Diſeaſe would be ſuppoſed to exiſt, and removed immediately by the ſame Cauſe; and this cannot happen together; but the Cauſe which is now antecedent, may become the containing, and e contra. So ſome Part of the Blood cauſing an Inflammation of the Hand, by its

Redundance, is the antecedent Cauſe of this Inflammation: But if it only circulates with the reſt of the Blood through the Limbs, the Head, and other Parts, it will be the containing Cauſe; if it flows to the inflam'd Hand, and is there again extravaſated, it will become the antecedent again, if from the affected Hand it paſſes into the Veins, and encreaſing the Maſs of Blood, circulates with it as before.

Q. Is there not a clearer and eaſier Diviſion of the Cauſe of a Diſeaſe?

A. The Cauſe of a Diſeaſe is ſufficiently, and far more clearly divided into the external, or outward Cauſe, and the internal, or inward Cauſe; alſo into the immediate Cauſe, and the remote. *Vid. Sennert.*

CHAP. XIII.

Of a Plethora, Cacochymia, and Flatulence.

Q. WHAT is a præternatural Humour?

A. I deferred treating of a Humour in Phyſiology, becauſe that conſiders only natural Things; but this Part treats of Things contrary to Nature, and therefore of a Humour, as the frequent Cauſe of a Diſeaſe.

Therefore a præternatural Humour, is one that hath ſome Quality hurtful to us.

Q. Of how many Kinds is this Humour?

A. As many as there are natural Humours.

Q. What is a Plethora?

A. A Plethora, or too great Plenitude, is a too great Quantity of the Maſs of Blood, with a due Proportion of Humours in it.

Q. Is a Plethora properly divided into a Plethora of the Veſſels, or in Reſpect to its Force, *ad Vaſa ad Vires?*

A. That Diviſion is not good; yet it is called a Plethora *ad Vaſa*, in which the Veſſels are much diſtended; and a Plethora *ad Vires*, where the Strength is much impaired.

Q. By what Means does a too great Quantity of Blood impair the Strength?

A. This happens, if there is a very great Quantity of Blood; for then the Blood is more ſolid, and paſſes more ſlowly thro' the Heart, whence it does not receive ſo great an Effervеſcence in the Heart. Beſides, it alſo much weakens the Heart, by too great an Expanſion of its Fibres, and makes it weary, from whence the Blood hath a weak Propulſion, an inſufficient Generation of Spirits, or Thickneſs, and thence ariſes a Sluggiſhneſs of all the Actions.

The foregoing Diviſion of a Plethora does not hold altogether good, as every Plethora *ad Vaſa*, is alſo a Plethora *ad Vires*, for the Veſſels cannot be too much diſtended, but there muſt be a Loſs of Strength from too great a Quantity of Blood of the Heart, to the Capacity of which they are proportioned; and thus the Strength is impaired, and e contra, the Quantity of Blood never impairs the Strength, but when it is too great, and then it diſtends the Veſſels too much, and is a Plethora *ad Vaſa*.

Q. What is a Cacochymia?

A. A Cacochymia is a depraved Quality of the Blood.

Q. Whence does it proceed?

A. Not only from the bad Quality of ſome Humour in the Blood, but alſo from the depraved Quality of any Humour, diſtinct from the Blood; for then the whole Maſs is not reckoned to have its neceſſary Quality, or Temper, and ſo a Cacochimia is of many Kinds, as the ſeveral Humours, diſtinct from the Blood, may be injurious by their Quantity, or as they all, even the Blood itſelf, may be depraved in Quality.

Q. What is a Flatulence; of what Matter is it generated; how does it end, and where is it chiefly formed?

A. A Flatus is reckon'd a præternatural Humour, which proceeds from the Humours chiefly from the Meats taken in the Phlegm of the Bowels, which, whilſt it ferments with the Gall, and the pancreatic Juice (as in the Fermentation of other Liquors) is reſolved into thick, tenacious Vapours, that are agitated like rarefied Air, and expand the Parts containing them, till they ſubſide, or are diſperſed, or otherwiſe diſcharged. Their principal Seat is the Inteſtines, becauſe they contain the fitteſt Matter, and Cauſe of it, and becauſe they are ſeldom without a Flatulence.

CHAP. XIV.

Of a Symptom.

Q. WHAT is a Symptom?

A. A Symptom is the Effect of a Diſeaſe, as Thirſt, of a Fever.

Q. Muſt a true Symptom follow a Diſeaſe, as its Cauſe?

A. A Symptom may alſo follow another Symptom; it may alſo follow the Cauſe of a Diſeaſe; but this is not a true Symptom; the Diſeaſe itſelf may be a Symptom; it may be alſo the Cauſe of a Diſeaſe, and a Symptom. Every Diſeaſe hath its Symptom.

Q. What are the Differences of Symptoms, and whence are they taken?

A. A true Symptom ought to follow a Diſeaſe as its Cauſe, and that immediately, or remotely only: From whence there is a Symptom immediately following a Diſeaſe, as above-mentioned, and another that does not immediately follow it; *i. e.* a Symptom, of a

Symptom, or one following the immediate Symptom. The Imagination deprav'd, as it follows the Motion of the Spirits in the Brain in a Circle, and increaſed further by an organic Diſeaſe, or by the too great Stricture of the optic Nerves, ſo that, through this Stricture, the Spirits rebounding from them are confined and obſtructed. A Symptom may alſo follow the Cauſe of the Diſeaſe; but, in Reality, it is only an Effect of the Diſeaſe. Thus, upon the Application of ſomething very corroſive to the Fleſh, it cauſes Pain, and Itching, and ſometimes an Ulcer; which, from the latter, may be called a Symptom of the Cauſe; hence that is the Effect which is effected by the Cauſe: Joint Effects are Effects from the ſame Cauſe. That I may, at laſt, anſwer the Diſtinction propoſed, I ſay, a Symptom is divided into three general Kinds, or Species, *viz.* into an Action injured; the Defect of the Retentions and Excretions; and the Quality of the Body alter'd.

CHAP. XV.

Of an Action injur'd.

Q. WHAT is an Action injur'd?

A. An Action is ſaid to be injur'd, when it is not perform'd in a proper Manner.

Q. How many Ways may an Action be ſaid to be injur'd?

A. Every Action may be ſaid to be injur'd three Ways; as entirely deſtroy'd, diminiſh'd, or deprav'd.

Q. What is an Action entirely deſtroy'd?

A. We ſay an Action is entirely deſtroy'd, as the Sight in Blindneſs, Motion in an Apoplexy, *&c.*

Q. What is an Action diminiſh'd?

Q. Which is leſs, and perform'd in a weaker, and leſſer Degree than it ought, as the Appetite is leſſen'd in a ſick Perſon?

Q. How do you explain an Action deprav'd?

A. An Action deprav'd, is that which hath ſome ſpecial Defect, whether it is weaken'd, or not.

Q. Under what Head do you place an Action encreas'd, and Pain?

A. They come under the Article of an Action deprav'd.

Q. What is Pain?

A. Pain is an uneaſy Senſation, ariſing from ſomething painfully affecting the Parts.

CHAP. XVI.

Of the Defects of Excretions and Retentions.

Q. WHEN are the Excretions and Retentions vitiated?

A. When there is ſomething vitiated in the Excretions and Retentions ariſing from the Diſeaſe.

Q. What is meant by an Excretion here, and how is it vitiated?

A. By an Excretion here, is meant whatever paſſes out of the Body: That is, not only what is continually ſeparated from the Chyle, and Blood, in ſound Perſons, but every Thing that is evacuated by the Sick, and that is faulty in its whole Subſtance, or Quantity, or Quality, or in the Manner, or the Time of Excretion.

Q. How many are the Faults of the Excretions and Retentions? What is faulty in its whole Subſtance? And can you give me Examples of all the Defects in the Excretions?

A. They are five: 1. In its whole Subſtance. 2. In Quantity. 3. In Quality. 4. In the Manner of Excretion. 5. In the Time of Excretion. That Excretion is ſaid to be faulty in its whole Subſtance, which in its Subſtance, or whole Species, is præternatural; and that ſingle, as the Stone, a Worm in the Bowels, the Procidentia Ani, or falling down of the Anus, in a Dyſentery. And, conſequently, the Schools are wrong, when they ſay, that every Thing which is retained in the Body, ought to be excreted, as faulty in its Subſtance; for laudable Blood is not ſo, but the præternatural Excretion of it is faulty and ſymptomatical. Yet, ſpeaking further of the Diſeaſes of the Solution of Continuity in the Veſſels, this Blood is, by me, comprehended under an Excretion, but not as having any Defect in its Subſtance, but in the Quantity, Quality, or in the Manner, and Time of the Excretion.

As to the Examples: The Examples of all the Faults in the Excretions are theſe: Firſt, in Excretions entirely præternatural, they are a Stone, a Worm, a Caruncle of the Inteſtines. 2. In Quantity; as too great, or ſmall a Quantity of the Menſes, or hemorrhoidal Blood; a too great Excretion of the Seed in a Gonorrhœa, of Urine in the Diabetes. 3. In Quality; as too ſtrong a Smell, or unuſual Colour in the Sweat, or Urine. 4. In the Manner of the Excretion, as the Excretion of the Fæces, through the Mouth in the iliac Paſſion; the Excretion of the Menſes by the Lungs, or by the Mouth. 5. And laſtly, In the Time, as when the Excretion of the Menſes is ſooner, or later, *&c.* all which follow the Action injur'd, as will appear upon Examination.

Q. What is underſtood by a ſymptomatical, and what by a natural Excretion, or by Idiopathy?

A. A ſymptomatical Excretion, is that which is made by a Diſeaſe, or while the Cauſe of a Diſeaſe ſo irritates, as Sweat, a Flux of the Belly, or Vomiting, *&c.* (the Cauſe ſtill continuing in the Body) without any Relief to the Patient, and ſometimes with greater Injury: This Excretion is præternatural and faulty; but that Excretion is natural, or idiopathetic, which happens from this Reaſon; becauſe the morbific Cauſe is ſo ſubdued, and prepared in the Courſe of the Diſeaſe, that it may be expelled by any Paſſage, with Relief to the Patient. An Excretion entirely præternatural, is the Excretion of a Stone, as before-mentioned.

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THE

Fourth, or Semeiotical Part,

OF THE

RUDIMENTS of PHYSICK.

CHAP. I.

Of a medical Sign in general; and of ſome of its Species.

Queſtion.

WHAT is called a Sign, among Phyſicians?

A. A Sign, among Phyſicians, is that which more plainly leads us to the Knowledge of ſomething occult in the Art of Phyſick.

Q. What do you underſtand by occult, in this Definition?

A. I un-

A. I underſtand, by Occult, the Conſtitution of this, or that Perſon.

Q. How is a Sign divided?

A. Many Phyſicians give the Diviſions of Signs, and Subdiviſions, *&c.* They alſo queſtion whether there are not neutral Signs; I call them only Signs which are of greater Conſequence, and neceſſary in daily Practice; therefore I divide them into Diagnoſtic, and Prognoſtic.

Q. What is a Diagnoſtic Sign?

A. A diagnoſtic Sign, is that which ſhews ſomething preſent; a prognoſtic Sign, foretells ſomething that is to come: As to Signs commemorative, ſalubrious, inſalubrious, ſeparable, and inſeparable, proper, natural, and præternatural, Vid. *Sennart.*

NOTE,

A prudent Phyſician will take Care not to proceed too freely, or raſhly, upon prognoſtic Signs, for Fear it ſhould procure him Hate, or Diſgrace; but it is rather better to conceal his Prognoſtication under the Name of Danger.

CHAP. II.

Of the Knowledge of a Diſeaſe from four Signs.

Q. BY what Signs is a Diſeaſe known?

A. 1. By the Species of the Excretions; as the Stone, by the Gravel in the Urine. 2. From the Nature of the Part; as by Pains of the Belly in Worms. 3. From the Property of the Pain; as an Inflammation from a throbbing Pain. 4. From Accidents peculiar to it; as a burning Fever, from the intenſe Heat of the whole Body, with a Blackneſs of the Tongue, and an inextinguiſhable Thirſt. Moreover Things helping, or injuring, afford a certain Knowledge of Diſeaſe.

CHAP. III.

Of the Knowledge of the Cauſe of a Diſeaſe.

Q. BY what Signs do we attain the Knowledge of the Cauſe of a Diſeaſe?

A. 1. From the Temperament; from a hot Temperament, we know the Diſeaſe is hot.

2. From the Colour of the Skin; from a yellow Colour, we know it is the Gall, and from thence termed Bilious. 3. From the Age; in an aged Perſon, the Cauſe is cold; in Youth, hot. 4. From the Kind of Pain; from a burning Pain, we know it is the Gall; from a wandering Pain, it is a Flatus. 5. From the evident Cauſe; ſo from a luxurious and plentiful Diet, join'd to a ſedentary Life, we know that too much Blood is the Cauſe. 6. From the Excretions; ſo from a frequent Excretion of Phlegm, we know that to be the Cauſe. From Things helping and injuring. Thus, if a cold Medicine gives Relief, we know the Cauſe is hot, and the like in other Caſes.

CHAP. IV.

Of the Knowledge of the Part affected.

Q. BY what Signs do we know the Part affected? And give me Examples of theſe Signs?

A. 1. From an Action impaired; we know the Ear is affected, if the Hearing is impaired. 2. From the Situation of the Diſeaſe; the Spleen is affected from a hard Tumor in the

Left-Side. 3. From the Nature of the Pain; thus a Membrane is known to be affected from a pricking Pain. 4. From its own Accidents; from Anxiety, the Stomach is known to be affected; from a Syncope, the Heart. 5. From the Excretions; an Affection of the Lungs, from the Particles of ſpungy Fleſh excreted with a Cough; by the Fæces coming through a Wound of the Belly, we know the Inteſtines are injured.

CHAP. V.

Q. FROM what Signs do we acquire a Knowledge of the Symptoms?

A. A Waſting, or pining away, from the diminiſhed Nutrition; Sanguification injured, from the bad Complexion. So a weak Conſtriction of the Heart is known, from the Weakneſs of the Pulſe.

Q. From what Signs do we foreſee, whether a Diſeaſe will terminate in Life, or Death?

A. Chiefly from four. 1. From the Species of the Diſeaſe; as a Phthiſic, a Wound of the Heart, the Plague, a Cancer. 2. From the Magnitude of the Diſeaſe, compared with the Strength of the Patient: As a Diſeaſe being great in itſelf, or comparatively ſo, or that is likely to laſt long, eſpecially if it is alſo great, for ſuch a Diſeaſe is mortal. 3. From the Continuance; if a Diſeaſe is long, altho' it is not very dangerous, and great, it is generally mortal, deſtroying the Strength by ſlow Degrees. 4. A Diſeaſe that, from its Nature, is known to be mortal, is one that hath the worſt, and moſt violent Symptoms.

NOTE,

The Contrary tend to Health. 1. As the one Day Fever. 2. A Diſeaſe without Malignity.

The Seaſon of the Year is alſo to be conſidered: Thus, in Autumn and Winter, Diſeaſes are generally longer; ſhorter in Spring and Summer, through the Tenuity of the Matter, and the greater Openneſs of the Pores.

CHAP. VI.

Of a Criſis, critical Days, and their Signs.

Q. WHAT is a Criſis?

A. A Criſis, is a ſudden Alteration for Life, or Death.

Q. How is a Criſis divided?

A. Into good, and bad; perfect, or imperfect; we ſometimes ſee Fevers ſuddenly cur'd, by Sweating; or a Flux of the Belly, or a Bleeding at the Noſe.

Q. What is the Cauſe of a Criſis?

A. The Cauſe of a Criſis, is a more vehement Influx of the animal Spirits, by Irritation, into the Fibres of ſome Part.

There are alſo critical Days, as well as climacterical Years [*] for the Rich and Covetous; and biſſextile Years for breeding Women; but theſe are meer Fables; for we are not to attribute more to theſe Days, than to others. Vid. *Hippocrat. Aphoriſm.*

CHAP. VII.

Of the Pulſe, conſidered as a Sign.

IN Phiſiology, I deſcribed the Pulſe among the Actions; here I only conſider it as a Sign: I ſhall therefore give ſeveral Differences, or Species of it, according to which the Phyſician may form various Judgments: But I would have you take particular Notice, that the Pulſe is very fallacious, and ſuddenly changes with the Motions of the Body, and Mind: Therefore the Phyſician would do wrong, to feel the Pulſe immediately upon the Sight of a ſick Perſon, as the great Solicitude of the Patient, how he may appear to the Phyſician, often changes the Pulſe.

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[*] This means no more, than that the Avaritious are frequently put in Mind of Mortality, from an Apprehenſion, that their Bodies receive great Alterations at ſuch Periods of Time; and this Opinion has great Antiquity on its Side, it being ſuppoſed the *Chaldæans* received it from *Pythagoras*, whoſe Phyloſophy much turned on Numbers, and who attributed an extraordinary Virtue to the Number 7. *Aulus Gellius.*

Q. How many Differences are there in the Pulſe?

A. There are many; but the Knowledge of four is ſufficient for a Phyſician: For the Pulſe is

Great, or ſmall;
Strong, or weak;
Equal, or unequal;
Quick, or ſlow.

The Pulſe is great, when every Artery beats hard, both in Length, Breadth, and Depth.

The Pulſe is ſtrong, in which the Artery ſtrongly ſtrikes, the Finger feeling it.

The Pulſe is equal, in which every Pulſe ſtrikes the Finger equally.

Thə Pulſe is quick, that beats oftner than uſual in the ſame Space of Time.

NOTE,

From contrary Cauſes, proceed contrary Pulſes: Such are,

1. The ſmall Pulſe;
2. The weak;
3. The unequal.
4. The ſlow Pulſe.

CHAP. VIII.

Of the Pulſe peculiar to different Temperaments, Ages, Sexes, &c.

HERE it is neceſſary to know the natural Conſtitution of every Body; and then it will be eaſy to determine the Difference of Pulſes.

1. What Pulſe belongs properly to the hot Temperament; what to the cold, the moiſt, the dry, the hot and dry, and the cold and moiſt, *&c.*

2. What the Pulſe is commonly in Children, in young Perſons, in the Adult, and in old Age.

3. What the Pulſe is in Spring.

4. What the Pulſe is in Summer, Autumn, and Winter.

5. What it is in Sleep.

6. In Anger.

7. In Sorrow.

8. In Joy.

9. Laſtly, what it is in Lovers, whoſe Spirits move irregularly, being agitated alternately with Fear, Hope, Joy, and Sorrow, which render the Pulſe unequal, and irregular. Every Author explains theſe Things in a different Manner; but by reading ſome of them, and making Obſervations on the dif-

ferent Conſtitutions, every one will be able to form to himſelf rational Notions: Wherefore, as I ſtudy Brevity, I ſhall ſay no more on this Subject.

CHAP. IX.

Of the Urine, conſider'd as a Sign.

Q. WHAT is requir'd for the better Inſpection of the Urine?

A. I treat here of the Urine, merely, ſo far as it is an Effect, which may ſhew us its Cauſe in ſome Part of the Body; being thus taken, it ſhews us either the Temper of the Body, or ſomething peculiar relating to its Parts, through all which the Serum continually flows; as it is from the Condition of the Parts that it is varied in its Subſtance, and Quality; by which Variation it makes ſome Diſcovery. But, that we may rightly judge by the Inſpection of the Urine, it muſt be excreted when the Chylification is quite perfected, whether it be by Day, or Night.

Q. How is the Urine of a Beaſt diſtinguiſhed from human Urine?

A. If any one, for the Sake of deceiving the Phyſician, ſhould offer him the Urine of a Beaſt; it could not be diſtinguiſhed any Way more certainly, than by the Smell.

Q. Can the Diſeaſe of any Part be diſcovered by the Urine?

A. Every Diſeaſe cannot be known by the Urine (contrary to what certain Quacks would impoſe upon the World) for there are ſeveral which do not affect the Urine; as the Vertigo, a Wound of a certain Part, the Palſey, or a Limb being out of Joint, and many others; although, in the mean Time, ſomething may be carried from each Part, with the circulating Blood, to the Kidnies, and thence to the Bladder.

Q. What are chiefly the Obſervations made from the Urine?

A. The Urine chiefly diſcovers the good, or bad Conformation of thoſe Parts, from which it hath its Perfection, and Generation. Hence the Urine is the diagnoſtic Sign of Life, and Death, as we ſhall ſee in the next Chapter, when I treat of the various Colours of the Urine.

Q. Doth not the Urine ſignify much in Reſpect of various Things?

A. The Urine hath various Significations, on the Account of its Colour, Smell, Taſte, Quantity, Conſiſtence, Contents, and other Things remarkable in it.

CHAP. X.

Of the Colour of the Urine.

Q. WHAT Colours are chiefly obſerved in the Urine?

A. Chiefly four; White, Yellow, Red and Black.

Q. What are the general Cauſes of the Colours in Urine?

A. The general Cauſes of the Colours in Urine, are, the natural Heat rightly concocting, and acting, as well on the Aliments in the Stomach and Bowels, as on the Chyle mix'd with the Blood, and the nutritious Juice, and other Juices mix'd with it; or from the Defect of both, the laſt is added, as it may be the Cauſe of limpid Urine; the watery Colour is not given it, becauſe Water has no Colour, therefore there can be but two general Cauſes of the Colours in Urine.

Q. How is it proved, that Heat is a Cauſe of the Colour in Urine?

A. That Heat is a Cauſe of the Colour in Urine, appears plain enough; for we ſee that in Fevers, after being heated by a warm Air, after Labour, after long Watching, where the Heat is encreas'd, after long Faſting, a longer Retention in the Body, or Excretion after Eating, the Urine is higher colour'd.

If it be objected, that the Urine, in theſe Caſes, is more colour'd, not only by Reaſon of the Heat acting immediately upon it, but ſo far as that Heat generates Gall, which tinges the Urine by being mix'd with it; I anſwer, it is true, that more Gall is then generated, which is mix'd with the Urine, and helps to colour it; but I do not admit that it acquires all its Redneſs from the Gall alone, as the Heat acts with equal Force, and at the ſame Time both upon the watery Part of the Urine, and on the Particles, which may be derived from the Gall. For we ſee that Beer grows deeper colour'd by Boiling; that Rheniſh Wine, carried into *Spain*, grows yellower; and that Urine, boil'd on the Fire, grows much redder: But, whilſt I ſpeak here of Urine, I underſtand it not as a ſimple Body, but as mingled with the Gall (which is naturally excreted with it, through the Kidnies) and other Parts, and ſo this Objection is of no Force; for it will always hold true, that the Urine, as I have conſidered it, will take a Tincture from the inward Heat.

Q. How many Sorts are there of white Urine?

A. Two; one thin and limpid, like Water; the other thicker, like Milk, or Whey; which laſt, in Children, is commonly a Sign of Worms in the Bowels.

Q. What is the Cauſe of theſe Kinds of Urine, and what do they imply?

A. The Cauſe of limpid Urine is, Firſt, a weak natural Heat, too much Drink. Secondly, too ſhort a Stay in the Body, through too great Laxity of the Parts; for thus, the due Chylification, or Sanguification, is not perform'd, ſo that little or no Tincture can be given to the Urine; an Obſtruction of the Paſſages, as in the Stone in the Kidnies; and, Laſtly, the Bile affecting the Head, from its too great Rarefaction, as ſometimes ſuddenly happens in Fevers, and which always forebodes a Delirium. The milky Urine, is cauſed by the Mixture of ſome whitiſh Humour, as Phlegm, Chyle, Seed, or Pus. (I once ſaw a certain Divine, who daily diſcharged two Thirds, or Half his Urine, chylous; and Sir *Richard Blackmore* was a Witneſs of the ſame Caſe.) Of theſe Colours, ſee *Fernel* and *Willis.*

Q. What is the Cauſe of yellow Urine, and of other Kinds reducible to this Claſs?

A. Yellow Urine is cauſed by the Heat with which the Chyle (being mix'd with the Blood) is duly concocted.

Under this Colour are comprehended, the light and deep Straw Colour, and the Citrine, or Amber Colour; for ſuch is the Urine of ſound Perſons, and this may be conſidered as a Standard, and is called the natural Urine of a healthy Perſon.

If the Degree of Heat is more intenſe, then it tinges a Linnen Cloth of a yellow Colour, which is a certain Sign of the Yellow Jaundice. Red Urine is cauſed by a Mixture of Blood, or a greater Degree of Coction: The Blood is mix'd with the Urine, either thro' its Thinneſs, paſſing the Kidnies with the Serum, or by a Rupture of a Veſſel in the Kidnies, Bladder, *&c.* Black Urine, and the ſeveral Kinds of it, proceed from the very great Aduſtion and Corruption of the Humours in the Body, and are mortal, unleſs they are voided upon a Criſis; and eſpecially that Kind which is of a dark blue Colour; but the greeniſh Urine is not ſo dangerous, for that may ariſe from a light Mixture of the green Gall, ſuch as is often found in, and thrown up by the Stomach.

N. B. Urine expoſed to the Air, changes Colour.

CHAP. XI.

Of the Smell, and Taſte, of the Urine.

Q. WHAT is the natural Smell of Urine; and what does it denote, if it has no Smell?

A. The natural Smell of Urine, is ſtrong, ſulphureous, and offenſive; and if the Urine has no Smell, it imports too ſhort a Stay in the Body.

Q. What do you infer from the urine that is extremely offenſive?

A. The urine unuſually offenſive to the Smell, denotes Corruption, or Ulceration, unleſs it is cauſed by eating rotten Cheeſe, Garlick, *&c.* But obſerve, that Pus being mix'd with urine, does not always occaſion a Fætor, or ill Smell.

Q. What is the natural Taſte of urine?

A. The natural Taſte of urine, is ſalt, and nitrous; if it hath any other Taſte, it proceeds from the Mixture of ſome other Humour.

Q. Is it not convenient for the Patient, or the Attendant, to try the Taſte of the urine?

A. It is beneath a Phyſician to taſte the urine; but this may be done by the Patient, or the Attendant, or a Servant, who may acquaint the Phyſician with the Taſte of it, that he may better know the Cauſe of the Diſeaſe; but if this cannot be done, it is beſt to take no Notice of it.

CHAP. XII.

Of the Quantity of the Urine.

Q. WHAT do you underſtand by the Quantity of the urine?

A. The Quantity, is its being more, or leſs, than uſual.

Q. How much urine is required in a natural State?

A. It ſhould be in Proportion to what we drink, or about a third Part leſs, that ſome Part may be allowed for Nouriſhment, ſome may, perhaps, paſs off by Sweat, or inſenſible Perſpiration, and by Spitting; and ſome Part ought to remain in the Blood, to dilute it, and forward its Circulation.

Q. What do you judge from a greater, or leſs, Quantity of urine?

A. A greater Quantity of urine, unleſs it happens through the Coldneſs of the Air, hindering Perſpiration, or upon taking ſome Diuretics, or from ſome other outward Cauſe; or after ſome Suppreſſion, a Dropſy, Rheumatiſm, or the Criſis of a Fever, by which the Cauſe of the Diſeaſe is often carried off; I ſay, a greater Quantity of urine, without theſe Circumſtances, denotes the Cauſe to be a Weakneſs, and too great Laxity of the urinary Paſſages, and that the Effect will be a

Waſting, or Contabeſcence, as in a Diabetes; a ſmaller Quantity of urine, unleſs it proceeds from Want of Drinking, denotes a great Heat, evaporating the Serum, by the Breath, Sweat, or inſenſible Perſpiration, as we often find in Fevers; or elſe an Obſtruction of the urinary Paſſages, and there is Reaſon to apprehend the Conſequence will be either a Dropſy, Rheumatiſm, Catarrhs, or Anxieties, or ſome other Diſorders, according to the Part it happens to fall on.

CHAP. XIII.

Of the Conſiſtence of the Urine.

Q. WHAT is the natural Conſiſtence of the urine?

A. The natural Conſiſtence of the urine, is like that of Beer moderately boil'd and fermented, or of any other Lixivium, moderately boil'd: The ſeveral Kinds of morbid urine, hereafter mentioned, differ from this natural State.

Q. How many Sorts are there of this morbid urine?

A. Four; the firſt is thick, for Want of Serum, or by the Mixture of ſome groſs Particles, ſuch as we ſee in the Beginning of Fevers: The ſecond is turbid, or foul, which differs from the thick Sort, becauſe the latter is clearer: The liquified Glue of Fiſh, and the White of an Egg, diſſolv'd, are thick, but, withal, clear, like the urine that is called Turbid.

Q. What is the Cauſe of thin urine?

A. The third, is thin urine, which happens from an Obſtruction of the urinary Paſſages; and thus the urine is often thin from a Stone in the Kidnies, as I have often experienc'd in a great Number of my Patients, who were afflicted with this Diſeaſe; or elſe from a weak natural Heat, which does not ſufficiently elaborate the Chyle.

Q. How is Tranſparency cauſed in the urine?

A. The fourth, is tranſparent urine, when the Interſtices, between the ſerous Particles of the urine, are leſs filled with certain groſſer Particles, and it becomes clear, and limpid, ſo that it can more directly, and freely, tranſmit the Rays of Light.

Q. What is the Cauſe of troubled, or unconcocted urine?

A. Troubled, or unconcocted urine, hath a Cauſe contrary to the foregoing.

CHAP. XIV.

Of the Contents of the Urine.

Q. WHAT do you mean, by the Contents of the urine?

A. The Contents of the urine, is any Sort of Matter obſervable in the Subſtance of the urine.

Q. How many Kinds are there?

A. Two, *viz.* The general, and particular.

Q. What is the general Contents?

A. That which is in almoſt all urine, and is diſtinguiſhed into three Parts; the Hypoſtaſis, or Sediment; the Eneorema; and the Nubecula.

Q. What is the Hypoſtaſis?

A. The Hypoſtaſis, is what ſinks to the Bottom, or the Sediment.

Q. What is the Eneorema?

A. The Eneorema, is what hangs in the Middle-Part.

Q. What is the Nubecula?

A. A little Cloud that appears at Top.

Obſerve, that of theſe, the Hypoſtaſis alone ſhould appear in the urine of ſound Perſons, which always ſhews the Concoction is ſtill carried on; and that which is white, and the Surface ſmooth, and of equal Conſiſtence, is found, by Experience, to be the beſt.

Q. Of what, and how is the Hypoſtaſis form'd in the urine, and the other Contents, and what do they denote?

A. The Hypoſtaſis in the urine, and the other general Contents, are a great Number of very minute Filaments, or certain oblong, and round Particles, that are formed from the Chyle, and from the Juice, into which our Blood is changed, before it yields Nouriſhment to the Body, which the Serum of the Blood waſhes off in its Tranſcolation through all Parts; and which, being ſeparated in the urine, by a Spirit, and the ſubtile Matter, lays hold of each other, by their rough and ramous Particles, and being entangled together, according to their own Gravity, and that of the Part which they conſtitute, they either form the Nubecula, Eneorema, or Hypoſtaſis; to which alſo the greater, or leſſer Thickneſs of the urine greatly conduces: For which, obſerve, that the Blood, or any Humour, before it is converted into Nouriſhment, is changed into a gelatinous Humour, not unlike the White of an Egg, and is afterwards turned into Filaments, that are eaſily intermixed with the Parts, by Reaſon of their Ramoſity: And that the Blood contains ſuch fibrous Particles, appears plainly, by diluting it in Water; for you will ſoon perceive ſome very fine Filaments, or Threads, ſwimming in it; nor are theſe fibrous Particles deſtitute of Chyle, but thoſe are deſtitute of Chyle, that curdle, like Milk; and, conſequently, from the general Contents of the urine, we cannot truly tell, whether the laſt Concoction is rightly, or not rightly performed; but only that which is performed in the Stomach and Inteſtines.

Secondly, the Nubecula, and Eneorema, are formed from this Cauſe, that the nutritious Juice is not enough concocted, nor elaborated into Filaments of ſufficient Strength and Thickneſs, but into lighter and more ſpongy Parts, that are ſuſtained by the reſt; or contains other fibrous Particles in its Pores, which makes it denſer, and groſſer, and hinders its being divided, to form an Hypoſtaſis.

Q. What doth the red Sediment denote?

A. It denotes, that the Nutriment of the Body is over-much, or too quickly concocted.

Q. What doth a corrupt, or unequal Sediment, denote?

A. Such a Sediment, ſhews that the nutritious Juice is not equally concocted, or is not of a ſimilar Subſtance, and therefore not equally complicated in itſelf.

N. B. If a Sediment appears in Fevers about the fifth, ſixth, or ſeventh Day, it is a certain Sign of Health, if there was none before, and the Sediment is not ſcatter'd, but even.

Alſo, in Fevers, the Eneorema, and Nubecula, about the third Day, indicate a Cure; which is more confirmed, if it thickens by

Degrees, and ſomething reſembles a Sediment; for they are the Fore-runners of a Sediment.

Q. Does the Sediment of ſick Perſons differ according to their Age, as I mentioned before?

A. It differs very much; for oftentimes it hath ſome Mixture of morbific Matter, as Pus, Blood, Gravel, *&c.* but if it is entirely excrementitious, it is commonly white, reddiſh, or yellow.

Q. What do you underſtand by particular Contents of the Urine; how many Kinds are there; and of what are they formed?

A. They are very numerous; the principal are the Stone, Gravel, Pus, Blood, Caruncles, Fat, a mealy, and branny Sediment, the greateſt Part of which commonly denote a Diſpoſition to the Stone in the Kidnies, and Bladder; but Fatneſs indicates a Waſting of the Body, and floats upon the Urine of conſumptive People. As for Gravel, it is not always the Fragments of a larger Stone, but a ſaline Concretion in the Urine.

THE

Fifth, or Therapeutic Part,

OF THE

RUDIMENTS of PHYSICK.

CHAP. I.

Of the Indication; and of the Indicate.

Queſtion.

WHAT is an Indication?

A. That a Phyſician may act rationally, and make a perfect and entire Cure, he ought to have a certain Indication which may guide him to what is, or is not proper to be done; an Indication is therefore an Inſinuation of the Thing that is to be done. N. B. To conſider the Thing aſſiſting, and the Thing that is to be aſſiſted.

Q. How do you divide the Indication?

A. Into the Conſervatory,* the Preſervatory, and Curative.

Q. What is the conſervatory Indication?

A. It is an Inſinuation of the Conſervation, of that which is in the Body, according to Nature: This is done by Things of the ſame Nature.

Q. What is the preſervatory Indication?

A. It is an Inſinuation of Preſervation from that which may be in the Body contrary to Nature.

Q. What is the Curative Indication?

A. The Curative Indication, is an Inſinuation of taking away that which is in the Body contrary to Nature. This, like the former, is done by Contraries.

Q. What is the Indicant?

A. The Indicant, is an Agent remaining in the living Body, which, on our knowing it, points out ſome Remedy.

Q. What is the Indicate?

A. It is that Relief, that is indicated by the Indicant.

A. How is the Indicate divided?

A. Into the Remedy, and the right Uſe of it. The Remedy is three-fold, for it hath Regard to Quantity, Place, and Time of Exhibition; for in theſe conſiſts the right Uſe of the Remedy. Of Coindicants, Conſentients, Contraindicants, *&c.* read the Authors who profeſſedly write on them.

CHAP.

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* To explain this more fully, the *Conſervatory Indication* ſignifies that whereby the Phyſician is enabled from ſome Appearances, and by juſt reaſoning, to ſupport the Body as near as poſſible in its natural State.

The *Preſervatory Indication* directs what is to be done, and what Means are to be apply'd, to cut off the Cauſe of an approaching Diſeaſe. And the *Curative Indication* ſhews how to remove a Diſeaſe, when actually formed.

CHAP. II.

Of the Method of Living.

Q. WHAT do you underſtand by the Method of Living?

A. Taken in its greateſt Extent, it means the Method to be obſerved in the Uſe of the Non-naturals, according to the different State of the Patient; but, in a confined Senſe, it is taken for the Method of Diet to be obſerved by ſick Perſons; becauſe it is the moſt difficult, and of the moſt Conſequence, therefore I ſhall treat of it here.

Q. By what is it indicated?

A. This Method of Diet is indicated by the Weakneſs of the Patient, ariſing not from the Oppreſſion, but from the Diſſipation of the Blood and Spirits.

Q. Whence is the Difference of Diet taken?

A. The Difference of Diet, is taken from the Form, Quantity, and Quality, the Opportunity of uſing it, and the Manner of taking it.

Q. From what is the Form of Diet taken, and of how many Kinds is it?

A. The Form of Diet is taken from the Quantity us'd; and it is that Method of Living, by which the Strength is preſerv'd, not confined to a particular Quantity, but varied according to the different Degrees of the Patient's Strength.

Phyſicians make three Forms of Diet, *viz.* the Strong, and Healthy; the Weak, and Thin; and the moderate Diet.

Q. Of what does the thin Diet conſiſt?

A. There are ſeveral Degrees of thin Diet; as the thin, the thinner, and the thinneſt, *&c.* of which, the laſt is next to nothing: After this, is the thinner, which conſiſts of Water, mix'd with Honey, Ptiſans, Barley-Water, Chicken-Broth, Panada, Apples, or Pears, boil'd, *&c.* that are order'd according to the different Degree of Acuteneſs in Diſeaſes.

Q. Where is the thin Diet proper?

A. The thin Diet is proper in acute Diſeaſes; the ſtrong, in healthy Perſons, that are of a ſtrong Conſtitution: The moderate Diet, in long, and chronical Diſeaſes.

Q. Is it worſt to err in too ſtrong, or too weak Diet?

A. I reply, diſtinctly, in this Manner: In long, and dangerous Diſeaſes, it is worſt to err in too thin, than too ſtrong Diet; but the Contrary in acute Diſeaſes, which I have often experienced; for in acute Diſeaſes we never find the Patient worſe for a thin Diet; but there are ſome who ſo far diſlike all Sorts of Food, that they ſcarce eat any Thing. But they are never found to be ſo ill affected by this, as by Fullneſs of Meat, which often throws them into great Oppreſſions, Anxieties, Watchings, aggravating of the Fever, or a Weakneſs of the native Heat, ſo that the Blood has not ſufficient Motion to expel the noxious Matter; therefore it is a Proverb among Phyſicians, *Nolo ægrotos meos obeſos fieri*; I would not have my Patients grow fat.

Q. How do you determine the Quantity of the Food?

A. As to the Quantity of Food, in Diſeaſes, the Patient may take more at the Beginning of a Diſeaſe, while he is ſomething better; but near the State, or in it, he ought to take none, or very little.

But this Rule is not to be followed in every Diſeaſe: As for Example; in the Beginning of Inflammations, eſpecially of the more noble Parts, whilſt the Blood continues to flow to the Part affected; for then the Patient is to eat leſs, for Fear of encreaſing the Inflammation; nor yet in every Diſeaſe without Inflammation, becauſe it is not good to eat, if any Crudity lies conceal'd in the Stomach, or Inteſtines, which often happens, for then it is beſt to take off that Crudity by a parſimonious Diet.

Hence it is the Cuſtom of Phyſicians, and well grounded, to allow little Food in the Beginning of Diſeaſes. Nevertheleſs, he would commit the worſe Error, who ſhould eat too little, rather than too much, at the Beginning of a Diſeaſe; but the Contrary, in the State of the Diſeaſe.

For do not certain Affections require peculiar Diet; ſuch a Temperament, and ſuch a Habit, or Cuſtom, require a Diet conformable to it? Cuſtom, and Affection, often contraindicate, but the Temperament, and Affection, never do.

The Quality of the Diet, is preſcribed by the Affection, Cuſtom, and Temperament; but it is not indicated by the Strength, for that only indicates the Subſtance of the Food, conſidered as Nouriſhment, not its Quality, as an Alterative; for, in that Reſpect, it is a Medicine, at leaſt, a medicinal Food.

By the Quality of the Food here, you are to underſtand that which it contains of a medicinal Quality; as Heat, Cold, Humidity, Dryneſs, an opening, or binding Power, *&c.* and not the Quality, conſidered as mere Food; as to be of eaſy, or difficult Digeſtion; of good, or bad Juices; heavy, or light, *&c.* Therefore the Affection requires a Contrary; but Cuſtom, and Temperament, a ſimiliar Diet.

Moreover Cuſtom, and Affection, often contraindicate each other; for if the Affection be hot and dry, it requires a cold and moiſt Diet; but, by Cuſtom, the Patient being us'd to a hot and dry Diet, forbids the cold and moiſt. In this Caſe, to ſettle a due Method of Diet, you muſt conſider how the Patiet contracted that Habit; if he acquired it, becauſe a cold and moiſt Diet did not agree with him; he ought to uſe the mean, and temperate Diet. If he acquir'd it, becauſe he is not ſo ill affected by a moiſt and cold Diet, but grows worſe from a hot and dry Regimen, then let him uſe the Diet contrary to the Affection, at the ſame Time making ſome Allowance for Cuſtom, or Habit.

Laſtly, if he is uſed to a hot and dry Diet, notwithſtanding he would receive no Injury from the cold and moiſt, then he may freely uſe the contrary Diet in the ſtricteſt Method: The Affection, and Temperament, never contraindicate each other; for the Affection always indicates that which re-eſtabliſhes the natural Temperament; and is always conformable to this Indication.

Q. Whence do you take the Manner of giving the Aliments?

A. The Manner of giving the Aliments; that is, often, or ſeldom, is pointed out by the Strength, and the Diſeaſe: This appears, becauſe the Strength is weak, moderate, or great. A Diſeaſe hath many Humours, or few, or corrupt.

Weakneſs requires little Food; moderate Strength, a moderate Quantity; great Strength, a proportional Quantity: But where a Diſeaſe is accompanied with great Strength, and a Redundancy of Humours, as in plethoric Habits, there the Patient muſt eat ſeldom, and ſparingly. Where there is little Strength, the Humours few, and corrupt, there Food is to be taken often, and in ſmall Quantities.

CHAP. III.

Of Blood-Letting, or Venæ-Section.

Q. IS not Venæ-Section the Indicate of ſome Indicant, and not the Remedy eſſentially uſeful in many Indicates?

A. A. Venæ-Section, or Phlebotomy, is a very antient Remedy, us'd by every Nation, and is not indicated by any Indicant, but is the *Materia Remedii* uſeful in many Indicates.

This is proved, becauſe, if it was indicated by any Thing, it would be a Plethora, but that only indicates the leſſening the Quantity of Blood, which may be effected by Venæ-Section, Cupping, Scarrifying, Leeches, or low Diet, and by Exerciſe.

Therefore Venæ-Section is not the Indicate itſelf, but the mere *Materia Remedii*, and that very general; for there are few Diſeaſes in which, if the Strength permits, Venæ-Section is not required (as the eſſential Remedy) but chiefly where the Blood exceeds its due Quantity. This confines the Blood, when hot and thin, within the proper Limits of its Circulation.

But, it is certain, that a Cacochymy is ſooner corrected by alterative Medicines, and a contrary Diet, than by Venæ-Section.

Q. How many Venæ-Sections did the antient Phyſicians reckon?

A. Three; the Evacuatory, the Revulſory, the Derivatory: I admit, I know but of one, and that is Evacuatory; and it is better to conſider all that uſed to be attributed to it, under this Head; for, by evacuating Part of the Maſs of Blood, the Remainder is better contained within the Veſſels, and the uſual Courſe of Circulation, by which Means we guard againſt a further Afflux, or Inflammation in the Part pain'd, bruis'd, or wounded, *&c.* alſo by evacuating part of the Maſs of Blood, the Veins are proportionally emptied, and ſo the extravaſated Blood (as in the Quinſey, Pleuriſy, and other Inflammations) not yet congealed, or, at leaſt, diſſolved by Medicines, returns more eaſily into the Veins.

Q. Is there any particular Vein, the opening of which, is a ſpecifick Cure for any particular Part, or Diſeaſe?

A. If we conſider the Circulation of the Blood, it is indifferent what Vein is opened: Yet, in Suppreſſion of the Menſes, we order the Vein of the Foot, or Saphena, to be opened, becauſe it very much conduces to promote the menſtrual Flux; for, by this Vein, the Blood is derived downwards, and the crural and iliac Arteries are ſooner exhauſted;

whence the Blood flows with more Celerity and Force into them, and alſo into the Arteries of the Womb, that are derived from the former, and, by this Means, uterine Obſtructions are often opened.

Q. What Veins are commonly opened?

A. They are theſe, *viz.* in the Head, the jugular Vein, the temporal Vein, and the Vein of the Forehead; in the Arm, the Cephalick, Mediana, and Baſilick; in the Hand, the Salvatella, and Cephalica; in the Foot, the Iſchiadal *; the Veins that are in the other Parts of the Body, do not appear ſo plain.

Q. What Caution are we to uſe in Venæ-Section?

A. In the firſt Place, you are to take Care, in cutting any of the ſaid Veins, that no adjoining Nerve, or Tendon, is hurt, leſt Convulſions, and other bad Symptoms, and even Death, ſhould enſue; and that you do not prick any Artery lying under the Vein, for this would eaſily bring on a Rupture of the Coats of the Artery; alſo, in cloſing the Wound, no Blood ſhould be left between the Lips, leſt an Inflammation, and other bad Effects, might follow; but it muſt firſt be well waſh'd and cleaned, and afterwards bound up.

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* Of theſe there are two, the Greater, and the Leſſer; the former proceeding from the Toes, by ten ſmall Branches, and, uniting together, paſs through the Muſcles of the Calf of the Leg; the other being formed from ſeveral Ramifications, proceeding from the Skin and Muſcles, encompaſs the Articulation of the Thigh, and thence are called Sciatic Veins.

Secondly, Care muſt alſo be taken, that a Vein is not opened too raſhly in the Plague, the Small-Pox, and in petechial, and other malignant Fevers, leſt the Malignity ſhould creep into the emptied Veins *, and be drawn inwards from the outward Parts.

Thirdly, Neither muſt a Vein be opened in the Acme, or Height of Fevers, where the Strength muſt not be leſſen'd; nor in the cold Fit of an intermitting Fever; nor in Women with Child, eſpecially in the Beginning and Latter-End of their Pregnancy, not in the Foot, leſt the Fœtus, while it is ſlightly faſtened to the Womb, ſhould be excluded before its Time, by the great Afflux of Humours. There is leſs Danger in bleeding in the Arm, for pregnant Women, from the third Month, to the ſeventh; and many Ladies open a Vein during their Pregnancy, and think it conduces to the Health of the Fœtus, and generally with good Succeſs. But *ne quid nimis*; that is, do not take away too great a Quantity; it is better to do it at ſeveral times.

Old Men, and Children, do not ſo well bear Bleeding, becauſe they want Nouriſhment; and, having loſt their Heat, and Blood (if it be good) they do not eaſily regain it:

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* In this Caſe, a Leſſening of the Quantity of a ſpirituous Blood, will likewiſe leſſen the Quantity of Spirits ſecreted in the Brain; the Conſequence of which will be, that the Heart and Arteries will not contract themſelves ſo often, and ſo ſtrongly, as before; therefore what Nature before intended to be eliminated by the Pores of the Skin, will be again abſorbed in the Circulation, and frequently fix itſelf on ſome vital Part.

But, ſometimes, in the Quinſy, Pleuriſy, *&c.* they looſe Blood with Succeſs.

We may take more from a fleſhy, than from a fat Perſon; and the ſame alſo from lean Perſons (provided they are not ſo from a parſimonious Way of Living, or from Labour, *&c.*) for ſuch Bodies have the moſt Blood.

Q. What is to be done, that the Vein may riſe plainly in View, that the Blood may flow more freely, and that the Patient may not faint away?

A. That the Vein may more plainly appear, make a Ligature above the Opening (as Surgeons uſe to do) by which the venal Blood, returning to the Heart, is ſomething ſtopped in the Vein; it is uſual alſo to ſhut the Hand, or to put ſomething into the Perſon's Hand, to move about with their Fingers: Or, if the Opening is in the Foot, it is put into warm Water, that ſo the Blood, being rarefied, might flow with more Freedom, making a Ligature above, to hinder its Paſſage to the Heart: But where the ſublingual, or jugular Vein, is opened, the Ligature muſt not bind the Neck too ſtraitly, for Fear of choaking the Patient.

Let the Vein be cut with a ſteady, not a ſhaking Hand, and ſomething obliquely, or ſideways, for, by this Means, it will not ſlide from under the Point of the Lancet. If, when a moderate Orifice is made (not a little one, for that would evacuate only the thin Part) the Blood does not flow out, the Ligature muſt be looſened, becauſe it binds the Artery that lies under the Vein, that ſo the Blood may flow more freely from the Heart to the Vein that is opened, or the Patient ſhould cough, to accelerate the Motion of the Blood, by the Contraction of the Lungs.

Q. Is it proper to give a Glyſter before Venæ-Section?

A. Some Phyſicians will order a Glyſter before Bleeding, that the Crudities of the Inteſtines, being thus evacuated, may not be carried into the emptied meſeriac Veins; and for the ſame Reaſons, they will not allow of Bleeding preſently after Meals.

But this Fear is ill grounded; for it appears, from Ligatures, that the Chyle is not carried from the Inteſtines, to the Heart, by the meſeriac Veins, but only by the lacteal Veſſels, much leſs their Crudities, which are groſſer, and more viſcid; for if, after Eating, any Thing was to be feared from the Stomach, it would be the throwing up its Contents, occaſioned by this Cauſe, that upon the retiring of the Blood and vital Spirits, from the Stomach, and other inward Parts, the fleſhy Fibres being leſs inflated and conſtricted, are readily expanded by the Aliments, whence an uneaſy Motion is impreſſed on the nervous Fibrillæ that are equally extended; which being communicated to the Brain, the animal Spirits are inſtantly rous'd, and ruſhing impetuouſly, through the Nerves, into the Fibres of the Stomach, its Action is ſubverted, and its Contents diſcharged.

Q. Some are afraid of Bleeding in the Dog-Days; and believe, that the firſt Time of Bleeding will have ſo great an Effect, as to deliver them from a Diſeaſe: What do you think of theſe Opinions?

A. Many People dare not bleed in the Dog-Days, as if they had ſome particular ill Influence; but what is hurtful at this Time, is only the Heat, and the Faintneſs, that it is apt to occaſion; therefore, if the Weather happens to be temperate, or if there is a Neceſſity, a Vein may be open'd. Nor are we to have any Regard to aſtrological Obſervations; for if there was any Occaſion for them, you might take your Directions from an Almanack.

There are others, who will not bleed, by Way of Prevention, in the Month of *May*, leſt they ſhould be obliged to do the ſame every Year following; as if it was neceſſary, and they were then more particularly urged to it, or otherwiſe they would fall into ſome violent Diſeaſe; but all theſe are mere idle Fancies, and Chimera's.

For although, perhaps, in the Month of *May* following, the Blood ſhould be heated, and diſtend the Body; yet, if Bleeding ſhould be omitted, it is not therefore certain, that a

Diſeaſe would enſue. And that which ſome People imagine, that the firſt Time of Bleeding will cure them of a Diſeaſe, is equally ridiculous. Although almoſt all Remedies are of greater Efficacy the firſt Time they are uſed, than when, by frequent Uſe, our Bodies are accuſtomed to them.

Q. Doth Bleeding promote the Motion from the Circumference to the Center, or the Reverſe; and does it cool the Body; and for what Reaſon?

A. To the firſt, I anſwer: Upon a moderate Evacuation of the Blood, by Venæ-Section, during the Time of Bleeding, the Vein being emptied, the Blood flows with more Celerity into the correſpondent Artery; and alſo afterwards; for having a freer Paſſage, it is better diſperſed through the whole Body; ſo that, in this Senſe, Bleeding promotes the Motion from the Centre to the Circumference; and alſo, from the Circumference to the Centre, for this Reaſon, becauſe, by emptying thoſe Veins which lie on the external Parts of the Body, the refluent Blood is more readily brought back to the Heart.

To the Second, that Bleeding both cools and heats the Body, in different Caſes; it is cooling in Fevers; where, by accelerating the Motion of the Blood in the emptied Vein, and the Artery, its Particles ceaſe to be agitated among themſelves ſo ſwiftly and confuſedly, in which ſwift and confuſed Motion the febrile Heat chiefly conſiſts, and by which the Parts of the Body are principally affected. Venæ-Section heats in a Plethora, where the Heat of the Heart is ſuppreſſed by the too great Quantity of the Blood; or, at leaſt, the Blood, by its ſlower Paſſage thro' the Heart, is not ſo eaſily rarified, and agitated.

Q. Is it good to ſleep after Bleeding?

A. I do not diſapprove of Sleeping an Hour or two after Bleeding; it may do good, becauſe it recovers the Strength.

Q. What are we to remark in the Blood extracted; and what Knowledge may we obtain from it?

A. In the extracted Blood, it is uſual, firſt, to obſerve, if it congeals; if, for Inſtance, in a Fever, it does not congeal, it denotes, that the Blood is greatly corrupted, and its Texture diſſolved: But, where there is no Fever, it denotes, that the Chylification, and Sanguification, are imperfectly perform'd; and further, that the natural Heat is weakened.

If the Blood is very fibrous and thick, and ſtrongly congeal'd, it is a Sign of Strength, of good Chylification, and Nutrition.

N. B. If a certain Maſs floats on Top, like the Jelly of Panada, or Gruel, of a whitiſh Colour, and not variegated, we are not preſently to complain of the Corruption of the Blood, like ſome ignorant Practitioners, but it is often Phlegm, or Chyle, which circulates with the Blood, into which it is to be turned; and this is oftner found in ill Habits of Body, becauſe, in ſuch, the Chyle is longer preparing.

As to thoſe whitiſh Fibres, which appear in the Blood, when it is diluted with Water, they are only Particles of Phlegm, or Chyle, not ſufficiently divided, but mutually joining, and cohering, as I ſaid, when I treated of the Blood.

Laſtly, if a great Quantity of Serum is found with the Blood, it denotes too great a Quantity of Drink lately taken, or the natural Heat weakened, or an inſufficient Evacuation by Urine, or inſenſible Perſpiration.

CHAP. IV.

Of the Section of an Artery.

Q. SHOULD not the Section of an Artery be uſed with much Prudence?

A. As the Blood is evacuated by Venæ-Section, ſo the ſame is performed by ſome Perſons, by opening an Artery, or Arteriotomy, but it muſt be done with great Caution; for, though many Perſons atteſt the good Succeſs of this Operation, and I have known it cure great Pains in the Head, and other Diſeaſes, nevertheleſs, there is Danger in the

Operation, becauſe the Flux of the arterial Blood, is not ſo eaſily ſtopped, nor is the Inciſion ſo eaſily healed.

Q. What Artery is generally opened, and what is to be done, to make it appear plain?

Q. The Artery moſt uſually cut, is that which lies over the temporal Muſcle; there are others in the Forehead, in the Hinder-Part of the Head, in the Hands, and in the Feet; and, in general, where they can moſt conveniently be come at. When the temporal Artery is cut, to make it the larger, let a Ligature be made above the Place where the Orifice is to be made, which will leſſen the Circulation of the Blood; or let the brachial Arteries be bound at their Beginning, that the Blood may be carried to the Arteries of the Head.

Q. How much Blood is to be taken away, and how is the Orifice to be cloſed?

A. The arterial Blood being of a more noble Nature than the venous, and more ſpirituous, cannot be taken away in ſuch large Quantities, nor by ſo large an Orifice, otherwiſe there would happen ſome conſiderable Change in the inward Parts, which might occaſion a Syncope, *&c.* Apply ſome very aſtringent, and ſticking Plaiſter, to the Wound, and ſecure it with a Ligature, *&c.* and continue it to the 8th, or 9th Day, till the Wound is perfectly cured.

CHAP. V.

Of Leaches.

Q. I Deſire to know in what Caſes Leaches are uſed?

A. We apply Leaches to thoſe Parts where we cannot ſo well uſe Venæ-Section, or Cupping, as the Noſe, the Lips, the Fingers, and Toes, the Womb, the Fundament; and likewiſe to Children, and others, when we need draw but little Blood.

Q. Which are the beſt?

A. They are the beſt, that are caught in clear Waters, of a middling Size, Liver-colour'd, the Belly reddiſh, the Back greeniſh, and interſperſed with Gold-coloured Streaks: The others are venomous, very red, and have a thicker Head, and are found in foul Waters.

Q. How are Leaches to be uſed?

A. Theſe Animalculæ have little Teeth, extremely ſharp, with which they take hold of, and pierce the Skin of Men, and other Animals, and ſtick to them, while they ſuck the Blood. That they may ſuck the more readily, anoint the Place with a Drop of Pigeon's, or Chicken's Blood, or rub it to a Redneſs, or prick it ſlightly, and do not handle them with the bare Hand, but with a clean Linnen Cloth. When they are faſtened (if much Blood is to be taken away) cut off their Tail, with a Pair of Sciſſars, ſo the Blood will run through them, as through a Syphon; but Care muſt be taken, that the Teeth do not remain in the Part, which would cauſe a Wound almoſt incurable, and ſometimes mortal. Therefore it is better they ſhould ſuck till they are glutted, and fall off themſelves, or to remove them, by putting Salt upon their Heads, and apply others in their Room, to draw off the Quantity of Blood requir'd.

I could add ſeveral other Queſtions, as whether thoſe freſh taken, are better than thoſe, that have been longer kept? Whether they ſuck only the melancholy Blood, *&c.* which, for Brevity's Sake, I omit.

CHAP. VI.

Of Cupping Inſtruments.

Q. WHAT are Cupping Inſtruments? Where, and how are they to be applied?

A. They are certain Inſtruments made of Glaſs, Horn, Metal, *&c.* to be applied to the more fleſhy Parts, to which they firmly adhere: They are not to be placed upon Tendons, where they cauſe Irritations; nor upon

Arteries, where they, ſometimes, occaſion too great Expanſions. They are applied more or leſs in Number, ſmaller, or larger, according to the Exigence of the Caſe, rubbing the Skin firſt, till it is red, with a warm Woollen, or Linnen Cloth.

The Method of applying the Glaſſes, is by holding each ſingly over the Flame of a Lamp of Spirits of Wine; and, immediately after the Air is heated, applying it to the Part, prepared by being rubbed, as aforeſaid; and, being raiſed by the Glaſs, it is afterwards ſcarrified, with an Inſtrument made for that Purpoſe, and then the Glaſs is re-apply'd as often as is neceſſary, to take away the Quantity of Blood required.

Q. What is effected by Cupping, either with Scarrification, or without it?

A. When it is performed without Scarrification, it only draws the Blood and Humours to the adjoining Parts, that they may perſpire more eaſily through the rarefied Skin. When the Operation is performed with Scarrification, beſides the above-mentioned Effect, it evacuates the Blood and Humours in any deſired Quantity; and ſo much the readier, if the Cupping-Glaſſes are firſt applied without Scarrification, by which Means the Blood is more readily drawn to the Skin.

Q. By what Means does the Cupping-Inſtrument act?

A. The Air being heated, is rarefied, ſo that it cannot be contained in it, and part is therefore expelled; and the Preſſure of the external Air becoming, by this Means, much ſtronger than that of the Air in the Glaſs, the Skin is raiſed, according as the Air in the Glaſs is more, or leſs, rarefied.

Q. Do not ſome Perſons miſtake in their Way of applying Cupping Inſtruments?

A. They are very much miſtaken, who cover the Inſtruments with warm Cloths, intending thereby to raiſe the Blood and Fleſh more; for, in Effect, it hinders its riſing; for the Air in the Glaſs, *&c.* is rarefied by the Heat, and depreſſes the Fleſh: On the Contrary, the cold, ambient Air, by condenſing the Air in the Glaſs, *&c.* takes off the Preſſure upon the Fleſh, and makes it riſe better, as any one may be convinc'd of, by applying the Hand firſt warm, and then cold. The Glaſs, *&c.* is not to be pulled off by mere Strength, for this would be painful, but the Air muſt be let in, by preſſing down the Fleſh with one Finger at the Side, and then it will come eaſily off.

Q. What is the Uſe of Cupping * in Phyſick?

A. The Uſe of Cupping, is very effectual; and eſpecially, to extract any Thing poiſonous, or malignant, out of the Body; nor does it produce ſo ſudden an Alteration in the Body.

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* Cupping is alſo uſed to promote the Menſes; applied to the Navel in the Cholick, to the Head in Apoplexies, and to the Neck in Defluxions of the Eyes.

Q. What Blood is it that is extracted by the Cupping-Glaſſes, *&c.*

A. It is the beſt Blood, as it is expreſſed by the incumbent Air out of the capillary Arteries of the adjoining Parts; yea, out of the very Subſtance of them; therefore they receive Damage from it: So that thoſe Phyſicians are very much in the Wrong, who dare not take ten or thirteen Ounces from their Patients by Venæ-Section, and yet will take away fourteen or ſixteen Ounces by Cupping, as is often done.

Q. In what Manner are Scarrifications uſed in our Times?

A. The Antients uſed to extract the Blood, by making Scarrifications, or ſuperficial Inciſions, or the Calves of the Legs, and about the Ankles; but the more tender Race of the Moderns, will not ſuffer ſo much Pain; therefore they are only uſed in Cupping, or when any Part is attacked with a Gangrene, that, through the Pain, the Blood and Spirits might flow more copiouſly to it, and ſo preſerve it from Mortification.

CHAP. VII.

Of Frictions.

Q. HOW are Frictions performed?

A. Frictions are performed either with Linnen, or Woollen Cloths, or by the

Fleſh-Bruſh, or by the Hand, &c. and continued till the Part is red, and either with, or without Pain.

Q. Do you think theſe Frictions make a Revulſion of the Blood, and Humours?

A. The Antients uſed them as a Revulſion, imagining that the Blood and Humours, which would otherwiſe flow to the Head, was, by this Means, drawn to ſome other Part, as to the Back, or to the Hand.

But here is no Revulſion made; nor do Frictions, in the Caſe mentioned, operate ſo deeply, that they ſhould prevent the Flux of any Humour to the Head; or, if they ſhould do any Thing of this Kind, it would be of ſo little Efficacy, and ſhort Duration, as not to merit the Name of a Revulſion.

Q. Of what Uſe are Frictions in Phyſick?

A. You may read, if you pleaſe, *Cornelius Celſus*, who wrote a whole Chapter, and a long one, concerning Frictions: But, in my Opinion, they only ſerve to make the Blood flow more eaſily to the Skin; and, if it has any Thing noxious in it, to throw it off by Perſpiration.

For gentle Frictions give Relief in ſlight Pains of the Head, and in an epileptick Fit, inaſmuch as the Spirits are calm'd by the gentle Motion of the nervous Fibres.

But the ſtronger and painful Frictions of the Fibrillæ, ſtir up and irritate the Spirits, ſo that they are carried with greater Force and

Rapidity through the Brain, and diſtend it, as in Watchings; therefore, in ſleepy Diſorders, they are good to rouſe the Patient.

CHAP. VIII.

Of Ligatures.

Q. ARE Ligatures in Uſe at preſent?

A. The Uſe of Ligatures is now almoſt laid aſide, becauſe great Things are expected from them, but little effected.

Q. Do they cauſe a Revulſion, as is imagined, in ſome Caſes?

A. They do, indeed, retard the Flux, or ſuppreſs it, but do not ſtop it; they are uſed in a Bleeding of the Noſe, in the Flux of the Womb, *&c.* A Part that continues long bound, is frequently ſeized with a Gangrene.

CHAP. IX.

Of the actual Cautery.

Q. WHAT is the actual Cautery?

A. The actual Cautery, is a red hot Iron, by the Application of which, to any Part of the Body, it is ſuddenly burnt.

Q. What is the Uſe of it?

A. It is uſed to cloſe wounded Arteries, and to ſtop the Effuſion of Blood in Amputations, in cutting off the Breaſt, *&c.* Vid. *Schultetus, Paræus, Fabritius, Hildanus.*

CHAP. X.

Of Cauſtics, and Bliſters.

Q. HOW does a Cauſtic act?

A. A Cauſtic, or potential Cautery, or Eſcarotic, acts in this Manner; becauſe its Particles, and Pores, are ſo diſpoſed, that, whilſt the Humours, or Juices of the Body inſinuate themſelves into them, the ſubtile Matter finds in them certain Paſſages ſo diſpoſed, that, through them, it moves more violently, and therefore impels ſome earthy, rigid, and acute Particles more impetuouſly upon the neighbouring Parts, and ſo produces a greater, or leſſer Heat that corrupts, or changes all Things in Proportion to the Degree of its Motion, and of the Particles moved.

Q. Of what Uſe is the potential Cautery?

A. It ſerves to open the Thorax, Impoſtumes, *&c.* that they may not be ſo deeply cut, as with the Inciſion-Knife, Probe, Sciſſars, *&c.* and the Aperture is ſafer, and leſs painful: It alſo conſumes luxuriant Fleſh; but beware of the Nerves, Tendons, and larger Veſſels.

Q. How does a Bliſter act?

A. A Veſicatory, or Bliſter, is of the Nature of a Cauſtic, and acts in the ſame Manner, but not ſo ſtrongly, whence it does not ſo much deſtroy the Cuticle: Its Uſe is in Fevers, and ſleepy Diſorders. See *Geor. Bagliv. Roman. De uſu & abuſu Cantharid.*

They are alſo ſerviceable in Caſes where any Thing acrid is to be excreted from the Blood.

CHAP. XI.

Of Iſſues, and Setons.

Q. WHAT are Iſſues, and how are they made?

A. Iſſues are certain little Ulcers, which are made by Art, in various Parts: They are made by the actual Cautery, or hot Iron, by burning the Skin; or by taking hold of the Skin with the Fingers, and raiſing it up, then cutting it with Sciſſars, or a Lancet; or by a Cauſtic; after the Cruſt is fallen off, and the Orifice is of a proper Bigneſs, a Pea, or a Pellet of Lint, is to be put into it.

Q. Where is the propereſt Place for them?

A. The Place for Iſſues, in the Arm, is between the Deltoide, and Biceps Muſcles. In the Thigh, on the Inſide, above the Knee, oblique about the Diſtance of two Inches.

Q. What is their Uſe?

A. They diſcharge noxious, or ſuperfluous Humours.

Q. What is a Seton?

A. A Seton, is a Skain of Silk, or ſeveral Threads joined together, of a proper Thickneſs, dipp'd in Wax, or ſome digeſtive Ointment, which is drawn thro' the Skin, raiſing it up from the Fleſh, with the Fingers, or a Forceps; the Point of the Needle may be red hot, or cold; and the Diſtance between the Entrance of the Needle, and the Place where it is drawn out, may be about two or three Inches. It is generally placed in the Neck, from the firſt to the fifth Vertebræ; and, ſometimes, in the Arms, in the Thighs, *&c.*

Q. What is to be done, upon making a Seton?

A. In the Beginning, you are to guard againſt an Inflammation; you muſt alſo apply Digeſtives, and the String is to be moved ſeveral Times a Day, from the Right to the Left, and the Reverſe; and this muſt be done till the Complaints ceaſe.

Q. Doth not a Seton act more ſtrongly than an Iſſue?

A. It is more efficacious than an Iſſue, but much more troubleſome; therefore is ſeldom made uſe of, but where other Methods have been try'd in vain.

CHAP. XII.

Of Suppoſitories.

Q. HOW do Suppoſitories act?

A. Like other Cathartics, for they ſtimulate the Fibres of the Rectum, by which the other Fibres of the Inteſtines are moved by Conſent, and the periſtaltic Motion is encreas'd, and, by irritating the Humours, they promote Stools.

Q. When are they uſed?

A. Conveniently in burning Fevers, for keeping the Body open; and in ſeveral Complaints of the Anus, and Inteſtinum Rectum; becauſe that is the Place of applying them.

CHAP. XIII.

Of a Glyſter.

Q. OF what Uſe are Glyſters?

A. They are uſeful in Diſorders of the great Inteſtines; for they do not reach beyond them, by Reaſon of the Valve that is at the Beginning of the Colon, unleſs it ſhould be relaxed, or preternaturally forced open by the too great Violence of the periſtaltic Motion?

Q. Why are Glyſters hurtful, if too cold, or hot?

A. Glyſters ſhould be injected neither hot, nor cold, but moderately warm; if too cold, they would congeal the Blood of the meſeriac Veſſels, from whence Obſtructions, Gangrenes, and other more dangerous Diſorders would ariſe; if too hot, they would produce Exulcerations, Pains, Flux of Blood, *&c.* in the Inteſtines.

Glyſters are of great Uſe in Phyſick; they are ſometimes uſed as an Alterative, or to diſperſe a Flatus, or ſoften the Fæces, or to deterge and liquify viſcid Humours ſticking to the Bowels; or to prepare the Way for a Purge. Glyſters are alſo uſed to aſſiſt, by its Irritation, a purging Potion, that does not paſs through the Inteſtines, and to make a Revulſion of the Matter, and take away the antecedent Cauſes of Diſeaſes: So in ſleepy Diſorders, Glyſters are convenient that ſtrongly irritate the Fibres of the Inteſtines, and open the Orifices of the Veſſels, by which the Humours are drawn toward the Inteſtines; they are prepared of Colocynth, Rad. Pyrethri, Croc. Metallor. and other Antimonials, to bring down the Menſes, to appeaſe Pains, to ſtrengthen the Inteſtines, *&c.* as in the Dyſentery, or Bloody-Flux.

Q. How do you determine their Quantity?

A. Their Quantity is indicated by the Bulk, or Repletion of the Inteſtines of thoſe that uſe them, and from the Part they are to reach.

If they are for Children, they muſt be leſs than for grown Perſons; and leſs alſo, where the Inteſtines are diſtended with the Fæces, or a Flatus; and, laſtly, leſs where the Inteſtinum Rectum is only affected, as in a Teneſmus.

They moſt generally contain eight, ten, twelve, or fourteen Ounces.

Bitter Glyſters are injected for Worms, and Anodynes in a Flatus, or Cholick; ſtronger in Apoplexies, and ſleepy Diſorders: Balſamics, and Carminatives, in Pains of the Bowels: Emollients, where Excrements are hardened: Laxatives, Lenients, ſaponaceous Medicines, and thoſe of Turpentine, are injected in the

Stone and Gravel. See *Mynſicht. Bates*'s and *Fuller*'s *Pharmacopeia*, &c.

CHAP. XIV.

Of Vomitive, or Emetic Medicines.

Q. HOW does a Vomit operate?

A. A Vomit, or an Emetic, by its aculeated Particles, impreſſes a preternatural Motion on the nervous Fibrillæ of the Stomach, which are very numerous: The animal Spirits ruſh plentifully out of the Cerebrum, into the Fibres of the Stomach, and the Motion which they gave it downwards before, is now changed upwards, and ſo the Contents of the Stomach, by its convulſive Motion, in which its Fundus and Sides are drawn towards the left Orifice, are expelled, and thrown upwards by the Conſtriction of the Fibres.

Q. How do nauſeous Things occaſion Vomiting?

A. Becauſe they cannot be well mix'd with the Acid of the Stomach, with the Saliva, and the reſt of its Contents; whence they fluctuate in the Stomach, and by this their Motion, and, by the Nauſea they produce, they irritate the Spirits to a more copious Influx into the Nerves and Fibres of the Stomach, which they then more vehemently and preternaturally contract.

Q. Does Vomiting agree with all Perſons?

A. It does not agree with all Perſons alike; Perſons in Health, vomit with Difficulty; and alſo thoſe who have ſmall and narrow Cheſts, phthiſical Perſons, thoſe who are ſubject to Head-Achs, thoſe who have Ruptures, or have any Reaſon to fear one.

NOTE,

1. Emetics are of more Efficacy than Purgatives, becauſe their Spiculæ enter deeper into the inner Coat of the Stomach, and ſo do more vehemently contract, and irritate its muſcular Fibres.

NOTE,

2. When they have entered the Maſs of Blood, they do not effect ſo much as Purgatives.

Q. What Conſtitutions do Vomits beſt agree with?

A. Thoſe who are troubled with a Nauſea, and Loſs of Appetite, where the antecedent Cauſe lies concealed in the Stomach, and thoſe who bear Vomiting eaſily; and where Purgatives have been uſed without Succeſs; chiefly when the peccant Matter hath been attempted before, as (Viſcidities by inciding Medicines, *&c.*)

and ſo a Way is prepared for exhibiting an Emetic.

NOTE,

Frequent, and difficult Vomiting, relaxes the Tone of the Stomach, weakens the Viſcera, and offends the Head. Tartarum Emeticum, Mynſicht. Ipecacoanha, Vin. Benedict. Oxymel, Scyllit, Guttæ-Gambæ, Turpeth-Mineral, or Emet. Flav. are the Vomits now chiefly uſed by the Phyſicians of *London.*

CHAP. XV.

Of Purgatives.

Q. WHAT is a Purge, and how does it operate?

A. A Purge, or Cathartic Medicine, ſtrictly taken (if it is of the milder Sort, as Caſſia, Senna, Manna, *&c.* is called a Laxative) when received into the Stomach, is diſſolved by its Heat and Moiſture, and its Parts diſperſed; by which the Humours it firſt meets with are diſſolved: Hence ſome Parts of the Medicine, that are thinner and eaſier put in Motion, by vellicating the Fibres of the Stomach, are carried to the Inteſtines, and from them into the lacteal Veins; they are then mix'd with the venous Blood, like the Chyle, and flow with it to the Heart, and from the Heart, are diſtributed, with the Chyle, by the Arteries, through the whole Body, and incide the Humours thereof, by the Motion and Acuteneſs of its Particles, till it enters the Inteſtines, ſtill accompanied with the Humours through the Ductus Choledochus, and pancreatic Duct, but chiefly through the meſenteric Arteries.

Q. How happens it, that, ſometimes, Cathartics cauſe great Pains of the Belly, and exceſſive Purging, Dyſenteries, *&c.*

A. It is cauſed by the groſſer Parts of the Medicine, that cannot enter the lacteal Veſſels, and variouſly offend, abrade, and irritate the Coats of the Inteſtines; whence proceed Pains, exceſſive Purging, and Dyſenteries.

Q. Does any Cathartic purge electively, or operate only upon ſome particular Part?

A. No Cathartic purges electively, or is deſtin'd to carry off ſome particular Humour: It is wrong to imagine, as ſome do, that thoſe Medicines, they call Cholagogues, do only purge the Gall; and Phlegmagogues, only Phlegm; and Melanagogues, only Melancholy; and Hydragogues, only Serum.

It is alſo certain, from the cadaverous Smell of the Humours, evacuated by Purgatives, that not only ſome Humours of a healthy Kind, but alſo ſome Particles of the Blood, perhaps, torn from the ſolid Parts, or that were intended for Nouriſhment, are carried out of the Body; and alſo, for this Reaſon, that, if a healthy Perſon takes a Purge, he will void as many Humours, or more, than a ſick Perſon; than how is it credible, that ſuch a Quantity of bad Humours ſhould lie concealed in a ſound Body? And, beſides the Humours, many Spirits, without Doubt, out of the Maſs of Blood, paſs into the Inteſtines, and are carried off by Stool.

Therefore, by the Way, I would always have my Pupils be cautious how they uſe Cathartics, and not have Recourſe to them upon every ſlight Occaſion, eſpecially the ſtronger Kind, as if they were the only Remedy in all Diſeaſes, for they are never uſed without ſome Detriment to the Body.

Q. What is the Indicant of Purgation?

A. The Indicant of Purgation, is ſome Cacochymia, or ill Habit, that deſerves Notice, not every wandering Fluctuation, or Motion of the Humours, which might rather be carried off by Cupping, Friction, Sudorifics, or Diuretics.

Q. How many Things is a Phyſician to conſider, in preſcribing a Purge?

A. 1. Whether a Purge is convenient, and for what Perſons. 2. The different Temperament of the Patients. 3. The Degree of Purgation neceſſary, and how often it is to be repeated. 4. The Time. 5. The preſent State of the Paſſages.

1. Purging is proper, where a Perſon is affected by ſome Cacochymia, as before mentioned.

A. It is to be conſidered, whether the Strength of the Patient will bear it, or whether the Conſtitution, the ambient Air, and other Circumſtances, will permit.

If the Patient has the Plague, petechial Fever, or Small-Pox, *&c.* he muſt not be purged, otherwiſe, as Purgatives lead from the outward Parts to the inward, Perſpiration and Sweat would ceaſe, upon the Continuance of which, the Cure of the Diſeaſe greatly depends; and the morbific Matter being thus drawn inward, would occaſion terrible Symptoms, and greatly endanger the Life of the Patient.

Q. Whence do you conclude, the Patient can bear Purging?

A. From the Pulſe, the Age, Sex, Temperament, Habit of Body, and Way of Living of the Patient.

Q. What Age can beſt bear Purgatives?

A. Middle-aged Perſons bear Purging beſt, Infants worſt, and Old Age next to Children.

Q. Which Sex bears Purging beſt?

A. Men bear Purging, better than Women; but there are ſome Women who bear the ſtrongeſt Cathartics, and are ſcarce moved by them, chiefly thoſe who labour under a Suppreſſion of the Menſes, or are dropſical.

Q. What is to be conſidered, in purging of Women?

A. Firſt, they muſt not be purged in the Time of the menſtrual Flux, as the Humours being thrown, by Revulſion, on the Inteſtines, will ſtop the Menſes; nor are they to be purged during their Pregnancy, but with the utmoſt Diſcretion, leſt the Medicine, by irritating the Uterus, ſhould cauſe Abortion.

The ſafeſt Time, in pregnant Women, is from the fourth, to the ſeventh Month, and not before, becauſe then the Fœtus being ſtronger, and the Womb more expanded, they are better able to reſiſt the Irritation.

But it is grown a Cuſtom, of late, to purge Women at any Time of their Pregnancy, but this only with the milder Cathartics.

Q. What Temperament bears * Purging beſt?

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* Purgatives make one of the moſt important Articles in Medicine; therefore an Idea of their Manner of Operation, is thus given by a very eminent Phyſician. A purgative Medicine (ſays he) being received into the Stomach by the Mouth, its Particles do there ſtimulate the Fibres of the Stomach, and thereby increaſe its digeſtive Faculty (that is) bring the muſcular Fibres of the Stomach, and the Muſcles of the Abdomen, and Diaphragm, into more frequent Contractions, till the Medicine is admitted into the Inteſtines; the Fibres and Glands whereof, being more ſenſible than thoſe of the Stomach, it eaſily moves, and brings them into more frequent, and forcible Contractions; whereby theſe Glands are ſqueezed, and ſo emit a fluid Matter, which lubricates the Paſſages, and mixing with the feculent Matter of the Inteſtines, renders it more fluid, by which, and by the uncommon Contractions of the Inteſtines, it paſſes more eaſily into the Inteſtinum Rectum, and is thence ejected by Stool. Thus do

A. The hot and moiſt Temperaments, and thoſe that are full of Fleſh; but not the dry, and fleſhy Habits.

Q. Is it not good, ſometimes, to prepare for a Purge, by a Glyſter?

A. You are to conſider, before Purging, whether there is not too great a Retention of the Fæces; for, in this Caſe, a Purge might do great Injury to the Inteſtines; therefore it would be proper to premiſe a Glyſter.

Q. How do you diſcover the Degree of Purging neceſſary; and how often is it to be repeated?

A. If there is little peccant Matter, and much Strength, as in the Rheumatiſm, *&c.* we may evacuate it at once; but if the Patient is weak, whether the Matter be little, or much, it is better to carry it off at ſeveral Times, or by Epicraſis, or gentle Purging, than by one Doſe; and the ſame is to be obſerved where the Matter is very copious, and the Patient ſtrong. We are to conſider here alſo, where the peccant Matter is lodg'd; if in the extreme Parts (as in the Gout) or if

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do gentle Purges act, and only cleanſe the Inteſtines; few of their Particles entering the Lacteals, ſo as to affect the Blood. But in the more violent Purgatives, the ſtimulating Particles are mixed with the Blood, and produce there very great Effects, by occaſioning, many times, preternatural Fermentations, and ſeparating the natural Coheſions of the Fluids of the Body; and do alſo, by vellicating the ſpiral Fibres of the Veins and Arteries, bring them into more forcible Contractions, and accelerate the Motion of the Blood: All which may, ſometimes, have a good, and, ſometimes, a very bad Effect, according as the Conſtitution is more, or leſs, affected by them.

it is viſcid and groſs (as in the viſcous Aſthma) it is not to be haſtily removed by one Cathartic; but by ſeveral gentle Doſes, or by Epicraſis.

Q. When is the proper Time?

A. As to the ſtated Time of Diſeaſes when Purges are proper, if we conſider the general Time, or State, it is beſt to purge in the Declination; alſo, often, in the Beginning, as it is my Cuſtom in many Diſeaſes, before they arrive at their Height, and whilſt their Strength permits, to take away part of the morbific Matter: But, if we conſider particular Times, I prefer the Time of Remiſſion, or Intermiſſion, for Purging. But it may be proper alſo to exhibit an Emetic, or Cathartic, in the very Paroxyſm, if the Matter be turgid, or very viſcid; for then it will be more eaſily evacuated, than by the more gentle Purgatives.

Of the Dog-Days, it is to be conſidered, that *Neceſſity has no Law*; nor are all Dog-Days equally ſultry.

Q. What are we to obſerve of the Paſſages?

A. We are to remark four Things of the Paſſages, by which a Purge operates:

1. Whether they will bear it?
2. Whether they are free, and open?
3. Whether they are near the Place that contains the noxious Humour; and whether there is a Communication between them?

4. Whether they have their natural Conſtitution?

Hence we ought not to purge other Parts through a Part affected, leſt it receive further Damage; not the Inteſtines, by the Æſophagus, becauſe the Stomach is not their excretory Paſſage, and is not accuſtomed to it.

Nor is it material, for the Proof of this Argument, whether Purges are given with Succeſs in a Dyſentery, where the Inteſtines are corroded; becauſe the noxious Humours are then in the Inteſtines, or are continually coming into them; therefore it is better to throw them out ſoon, than to let them continue there with greater Danger.

Q. What are we to do, after taking a Purge?

A. After taking a gentle Purge, that it may operate the better, we are not to ſleep upon it: Much leſs, if it is ſtrong, and of a reſinous Nature, as of Colocynth, Hellebore, *&c.* But if it is a Medicine in a ſolid Form, as a Bolus, but chiefly in Pills, we may ſleep a little after it. It is good to take a little Beer-Poſſet, or thin Chicken-Broth, after the Medicine is diſtributed, and begins to operate, that the Remains of it may be waſhed out of the Inteſtines: Let not the Poſſet, or Broth, be ſtrong, unleſs the Purge hath ſomething malignant in it, or there is Reaſon to fear an Over-purging; otherwiſe, according to the

Nature of fat Subſtances, they will blunt the Force of the Medicine.

If a Perſon purges in a Morning, let him eat ſparingly at Dinner; for the Stomach then, for Want of Spirits, and through the Strength of the Medicine, will not digeſt ſo well; but, in the Evening, when he is recover'd, he may eat more plentifully. Our Phyſicians, in *England*, frequently preſcribe Paregorics after Purging, to appeaſe the Tumult of the Blood and Spirits; but this Rule is not to be generally obſerved, for all Paregorics are binding.

CHAP. XVI.

Of Alexipharmics and Sudorifics.

Q. LET me know the good Effects of ſweating Medicines, and how this Practice may be defended?

A. Sweating Medicines, or Sudorifics, are far preferable to Cathartics, and Venæ-Section.

Q. How do Sudorifics, or Diaphoretics, operate?

A. For the moſt Part, they carry off the morbific Cauſe quietly, ſucceſsfully, and without Injury: We ſee this in the Plague, petechial Fevers, and other malignant Diſeaſes. If Sudorifics can do this in the moſt violent Diſeaſes, what may they not perform in ſlighter?

I know many Phyſicians will uſe ſcarce any Thing, in Fevers, but Purging, Venæ-Section, and cooling Medicines; and they ſay, that Sudorifics are too hot, to have any good Effects; but let them know, that they are not all equally hot; and, though ſome are hot, they are ſafer than Purgatives.

If they ſay Sudorifics only carry off the Serum, but not the groſſer Humours; I ſay, the Pores and Glandules of the Skin, are as open as thoſe of the Liver, Pancreas, and Inteſtines, by which Purgatives act; therefore groſs Humours may be as well carried off this Way; eſpecially, as Sudorifics do alſo attenuate the groſſer Humours.

Q. How do Sudorifics operate?

A. They operate from this Cauſe; that their Heat, and minute Particles, do greatly attenuate, incide, agitate, and rarefy the Humours of the Blood, and drive them forward, with whatever elſe they meet in their Paſſage, to the Glands, and Pores of the Skin, to be there condenſed into Drops, or expelled by inſenſible Perſpiration.

Q. Is Sweating good, that is raiſed by many Bed-cloths?

A. That Sweating is not good, being too much forced, oppreſſing, and weakening the

Patient; but the Sweat that is brought on by a ſudorific Medicine, paſſes off almoſt without any Trouble.

CHAP. XVII.

Of Diuretics, or Medicines that promote Urine.

Q. WHAT Encomium do you beſtow on Diuretics, or Medicines that provoke Urine?

A. Diuretics, or Medicines that promote Urine, carry off with them, the Humours, and other Things, contained in them, without any Inconvenience, Danger, or remarkable Commotion of the Maſs of Blood; therefore they are moſt excellent Medicines, and to be given in the Beginning of almoſt all Diſeaſes.

Q. Are Diuretics like Sudorifics?

A. They differ little in their Manner of Acting in the Body, for they attenuate groſs Humours, diſſolve congeal'd Humours, and open Obſtructions; and this by the Minuteneſs of their Particles. Hence all Things that promote Sweating, do alſo, in ſome Meaſure, promote Urine, and the Contrary: Medicines that ſtrongly promote Urine, do ſlightly promote Sweating; or, at leaſt, increaſe inſenſible Perſpiration, and differ from Sudorifics, only in the Degree of their Operation.

CHAP. XVIII.

Of Expectorating Medicines.

Q. WHAT do you mean by expectorating Medicines?

A. Expectorating Medicines, or thoſe that produce Spitting, are thoſe Medicines that help to carry any Thing from the Lungs.

Q. How do expectorating Medicines act?

A. Some act by incraſſating the Humours, if they are thin, that ſo they may be the eaſier ejected by the contracted Ramuli of the Bronchia, and ſo may not circulate again with the Blood; and, being carried to the inner Membrane of the Bronchia, they moiſten and lubricate it.

Others act, by inciding and attenuating the groſs Humours, as well in the Lungs, that they may yield to the Contraction of the * Ramuli of the Bronchia, as thoſe in the Blood, that they may paſs more freely thro' the Lungs, by the Minuteneſs of their Particles, and, at the ſame Time, irritate the Bronchia to Contraction and Expulſion.

CHAP.

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* Theſe are Expanſions of the Membranes of the Bronchia, to which they hang, like Grapes, in Cluſters.

CHAP. XIX.

Of Medicines that promote Salivation, Apophlegmatiſms, Errhines, or medical Snuffs.

Q. WHAT are the Uſe of theſe Medicines; which are the Principal; and how do they operate?

A. Medicines that promote Salivation, are often given to leſſen the Serum of the Blood, but chiefly to carry off phlegmatic and ſerous Humours wherever they are concealed. The principal are Mercury, or Quickſilver, and its Preparations; which, whether applied outwardly, as an Ointment, or taken inwardly, is found moſt powerfully to evacuate ſluggiſh Humours, even thoſe that are coagulated in the Venereal Diſeaſe; but they are to be uſed with Caution.

They are ſuch Medicines that, by the Fineneſs of their Parts, inſinuate themſelves into the Blood and Glands; and, in their Paſſage through them, open their Pores, and excretory Ducts, and at the ſame Time, by their eaſy Motion and Minuteneſs, they divide and attenuate the viſcid Humours, that ſo they may more eaſily paſs off by their uſual Emunctories; therefore theſe Medicines are uſed in inveterate and ſtubborn Diſeaſes, and generally where the Cauſe is viſcid and latent, or in the Joints.

Q. Do not theſe Medicines act, ſometimes, by different Ways?

A. Mercurials do not always act by Spitting only, but frequently alſo by Urine, Sweat, and violent Stools, as is evident in thoſe who undergo the Cure of the Venereal Diſeaſe: But, unleſs ſome Error is committed in Diet, or a ſtrong Purge taken, they uſe to act moſt by the ſalival Ducts, becauſe theſe Glands are more lax than the others, and particularly deſigned, confirmed, and accuſtomed, to carry off viſcid Humours.

Q. How do Apophlegmatiſms differ from ſalivating Medicines; and how do they operate?

A. They differ from them, becauſe they are not applied outwardly, nor given inwardly, but are chew'd, or uſed in Gargariſms, or applied to the Palate, and are much milder, and do not penetrate ſo far, and are ſuch that, with their aculeated Particles, they open and irritate the Glands that are ſpread all over the Mouth, and diſſolve their Viſcidities.

Q. How do Errhines, or medical Snuffs, act?

A. Errhines operate almoſt like Apophlegmatiſms, and irritate, rarefy, and draw Humours from the glandulous, or ſpongy Fleſh, that covers the Noſtrils, and the finer Parts of them may enter the Brain, and even its Ventricles, through the Os Cribroſum, and the olfactory Nerves, and attenuate and bring off the Humours from thence to the Noſe; but Care muſt be taken that, by too great a Diſcharge of Humours from the Brain, we do not cauſe ſome greater Diſorder, than that we intend to cure: Why they ſometimes relieve the Brain, and ſometimes not, as I ſaid before, is, that the Mucus of the Noſe, does not come wholly from the Brain, but alſo from the internal Parts of the Noſtrils.

CHAP. XX.

Of Sternutatories, or Medicines that cauſe Sneezing.

Q. WHAT are Sternutatories?

A. Sternutatories, or ptarmic Medicines, are thoſe which irritate the interior Membrane, or Membrana Schneideriana, with their Sharpneſs, and act more powerfully than Errhines; by which, exciting an uneaſy Senſation in the olfactory Nerves, and the adjacent Parts, the Spirits, reſiding in the Brain, are vehemently moved, and the Meninges, or Membranes of the Brain (as the inferior Membrane of the Noſtrils is derived from them)

them) being moved by Conſent of Parts, it happens that the Membranes of the Brain, and, ſometimes, the Subſtance of it, are contracted, and impelling the Spirits into the Nerves of the Par Vagum, the Diaphragm, and intercoſtal Muſcles, are put into Motion, and the Thorax violently contracted, till the Matter, cauſing the Irritation, is ſhook off.

Whence ſtrong Sternutatories may occaſion great Diſorders, ſuch as Convulſions, Obſtructions of the Nerves, by throwing the Humours on them, and, in ſome Caſes, even Death.

Q. What is their Uſe?

A. It is uſual to give them in ſleepy Diſorders, that, by rouſing up the Spirits, and putting them again in Motion, the Patient may wake; or that the Humours, which obſtruct the Paſſage of the Spirits in the Nerves, may be thrown off.

CHAP. XXI.

Of Medicines that promote the Menſes, and Venery; that generate Seed, and Milk, and expel the Fœtus, and Secundines.

Q. WHAT are thoſe Medicines, that promote the Menſes, and generate Seed; and whence is it they have this Effect?

A. They are ſuch as, by the Minuteneſs of their Particles, open the Extremities of the Womb, and the Teſticles; and further, in Men, they more expand the tubulous Subſtance of theſe Parts, and ſo open a Way for the Blood to follow; or, by exciting a greater Fermentation in the Blood, impel it with more Force to the Uterine, and ſpermatic Arteries.

Q. Are not ſuch Medicines hot and volatile?

A. They are ſo; and alſo carry a certain Acrimony into the Blood, that the Spirits may be moved with more Alacrity; and they alſo excite Luſt, becauſe they produce a greater Quantity of ſtimulating Seed.

Q. But what are thoſe Medicines, that reſtrain the Menſes, Seed, and Luſt?

Q. Thoſe that, by their Aſtringence, ſhut up the Paſſages to the Womb, and Teſticles, or that diminiſh the Motion of the Blood, and ſo cool it, or thicken it, and check or dull the Spirits; ſuch an Effect have all Things that are cold, and leſs ſpirituous.

Q. How do thoſe Things act, that encreaſe, or diminiſh Milk?

A. They act by diluting the Chyle, which makes it paſs more eaſily through the lacteal Veſſels of the Abdomen, and Thorax, and arrive at the Breaſt; they are generally Liquids that are ſomething ſpirituous; but chiefly thoſe Things that, being taken inwardly, or applied outwardly, do relax the Glands of the Breaſts, and the lacteal Tubes, that ſo they may the better admit the Chyle. Contraries diminiſh the Milk.

Q. How do thoſe Things act, that expel the Fœtus and Secundines, and thoſe that preſerve the Fœtus?

A. Thoſe Things expel the Fœtus and Secundines, which, being carried to the Fœtus, irritate it by their Acrimony, and make it kick, and move ſo as to break the Secundines, or by ſtimulating the Womb, or by agitating the animal Spirits more violently, and by ſending them in greater Plenty into its Fibres, throw it into Convulſions, and expulſive Motions: They preſerve the Fœtus, that calm the like Irregularities of the Spirits, and that have an aſtringent Quality.

CHAP. XXII.

Of Medicines that diſſolve the Stone in the Bladder, diſperſe Flatulencies, and kill Worms.

Q. WHAT are Medicines that diſſolve the Stone in the Bladder?

A. They are called Lithontriptics; and are thoſe which, by their rigid and inciding Particles continually falling into it with the Serum, do, by Degrees, wear it away; but this only while it is ſoft, and ſandy.

Q. What are thoſe Medicines, that diſperſe Flatulencies; and how do they perform it?

A. They diſperſe a Flatulence, that quiet the Fermentation from which it ariſes, or attenuate it, or cauſe it to perſpire, by opening the Pores of the Parts containing it; or, laſtly, that confine it by their Viſcidity.

Q. What are the Medicines that deſtroy Worms?

A. Thoſe Things deſtroy Worms, that are contrary to them by their Bitterneſs, or Saltneſs.

CHAP. XXIII.

Of Medicines procuring Sleep, and mitigating Pain.

Q. WHAT are Medicines which procure Sleep, and ſtupify; and how do they act?

A. Of thoſe Medicines that procure Sleep, and relieve Pain, ſome are milder, as Hypnotics, or Anodynes; others ſtronger, called Soporiferous, and Narcotic, or Stupifying Medicines: They are ſuch Things as, by their aqueous, and cold Humidity, dull the Spirits, or relax the Fibres of the Brain, and fix the Spirits with their Viſcidity, or contract them into a ſmaller Space, or ſtop the Paſſages of the Nerves at their Origin, ſo that there is not a due Influx of the Spirits into the Organs of the external Senſes: Or the Organs themſelves are not rightly diſpoſed, eſpecially with Regard to their Fibres, which ſhould be diſtended by the Spirits, either by Pain, or Watching, that the Motions impreſſed on them may be propagated to the Soul; and ſo Sleep, and a Ceſſation of Pain, muſt follow.

Opium acts in this Manner, and all the Compoſitions of it, or any Thing that partakes of the ſame Quality, as the Smoke of a

Lamp, of a Candle, of Coals, Exhalations from ſome Caves, the Vapours from Beer working in Cellars, and other Things which we take in with our Breath, or as Food, either mediately, or immediately carried to the Brain; or, laſtly, outwardly applied to the Head, or any other Part, and penetrating the Brain.

Q. What are lenient Medicines, and how do they act?

A. They are properly Medicines appeaſing Pain, or Anodynes, that, by their kindly and moderate Heat, and the Softneſs of their Parts, do partly diſperſe, and partly temper painful Humours; and thus they take away, or leſſen, the more violent and troubleſome Motion of the Parts, which is the Cauſe of Pain.

CHAP. XXIV.

Of Cordials *, *or Medicines recruiting the Spirits.*

Q. WHAT are Medicines which recruit the Spirits; how many Ways do they act; and are they not of various Kinds?

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* Cordials, are comforting, or refreſhing Remedies, that give ſudden Strength and Chearfulneſs, by raiſing the Spirits, which were

A. Thoſe Medicines reſtore the Spirits that, by their Tenuity, and Volatility, are eaſily and ſoon converted into Spirits, or excite thoſe that are, in a Manner, benumb'd in the Brain, and Nerves, or that have not their proper Motion, and thus renew their Activity, whether they are taken inwardly, as Spirits of Wine, Cinnamon-Water, *&c.* or applied to the Noſe, as various Odours, and Spirits, or anointed on the Temples; whether they reach the Spirits reſiding in the Brain, through the Os Cribroſum, or by the Way of the Blood, and thus put them into Motion, or whether they move them by a Motion communicated to the Spirits in the Nerves that are neareſt, and they transfer, by the Means of others, the Motion to the Brain.

Thoſe Medicines alſo revive the Spirits, which, when the Blood is too much diſſolved, ſtrengthen it, and preſerve its Spirits, as ſome cold and ſubacid Medicines, or that attenuate it, when too thick and ſolid, and ſo not eaſily reſolvable

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were too much depreſſed by Exerciſe, or ſome Diſeaſe. Cordials act, by giving a Springineſs and Force to the Fibres, and by ſome of their fine Particles directly entering the Tubula, or Pores of the Nerves, and minute Veſſels, and ſo mixing immediately with the Fluids. Thus ſome of the Particles of Spirit of Lavender are ſuppoſed to enter the Nerves of the Palate directly; and, in Faintings, where the Circulation is languid, Sal Volatile, or Spirits of Hartſhorn, dropp'd in cold Water, and drank, immediately occaſion a Contraction of the Fibrillæ, the laſt by its Coldneſs, and the firſt by entering the minute Veſſels; and thus they inſtantly augment the Circulation, or, in other Words, recruit the Spirits, and prove Cordials.

A. By their thick and ramous Parts, they connect and join together thoſe that are more liquid and moiſt, and ſo bring them to a thicker Conſiſtence.

Q. How do attenuating and inciding Medicines operate?

A. Becauſe they cut and attenuate the thick and viſcous Humours with their acute Points.

Q. How do Emplaſtics operate?

A. By their ſoft, flexible, and ramoſe Particles, they eaſily adhere to the Parts of the Body; and join them together, and ſhut up their Pores, and ſo, by hindering the Effluvia, they promote Suppuration.

Q. How do temperating Medicines act?

A. Temperating, otherwiſe call'd Epiceraſtics, are like Emplaſtics; and operate by ſheathing and blunting with their ſoft and flexible Particles, others that are ſharper and more acrid, or, if it is performed by their ſoft and flexible Particles, at leaſt, they are of ſuch a Nature, that they readily admit the Particles of any more acrid Humour into their Pores, deſtroy them, and carry them out of the Body; or they wear blunt, and diſſolve other Particles by their Hardneſs, as Crabs Eyes, Coral, Shells, and many other harder Things, and Alcalies temperate Acids.

Q. How do Detergents act?

A. They abrade and carry off with their hard, rough, and ſharp Particles, the Sordes they meet with in the Paſſages and Superfices of the Body.

Q. What are * Repellents?

A. They repel the Afflux of Humours, and leſſen Swellings, by their Coldneſs and Aſtringence, hindering the Heat, and ſhutting the Pores and Paſſages of the Parts.

Q. How do Attrahents operate?

A. Attrahents, more properly Educents, to which Claſs belong Pyrotics, or Urents, and veſicating Medicines, of which I have before taken Notice: Theſe Medicines, by their extraordinary Heat, and the Subtlety of their Particles, open the Pores of the Parts, and rarefy the contained Humours, ſo that the reſolvable into Spirits, or their Parts, by diſſolving the Acid which coagulates the Blood, as Pearls, precious Stones, Crabs Eyes, *&c.*

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* Repellents, drive back a morbid Humour into the Maſs of Blood, from which it was unduly ſecreted; and prevent ſuch an Afflux of the Fluids to any particular Part, as might raiſe it into a Tumour, or drive them back, when collected: Therefore, as great Miſchiefs has been done by them, it may not be improper to conſider their Manner of Operation. A Medicine becomes Repellent, by conſiſting of ſuch ſubtile Parts, as may tranſmit ſome of them through the Pores, and render the obſtructed Matter more fluid, ſo that it comes more eaſily looſened, and falls again into the circulating Current. But, in this Caſe, there is great Hazard of ſuch Things putting the obſtructed Humour into a Ferment, and, inſtead of repelling, it is ſooner turned into Pus. Some Things likewiſe anſwer this End, only by ſtimulating the Fibres of the tumefied Part, ſo as to give them ſudden and forcible Twitches, whereby the Obſtruction is looſened, and ſhook back into the refluent Current. Such Motion will be occaſioned by the ſudden Application of any Thing extremely cold, as common Water; but this Practice is very unſafe; becauſe if the firſt Efforts which the Fibres are put upon, by theſe Means, do not ſucceed in breaking away the incloſed Matter, they will be ſtrained, and not able afterwards to repeat their natural Vibrations; the Conſequence of which, is weakening the Part, and rendering the Tumor more obſtinate.

CHAP. XXV.

Of the Manner of Acting of various other Medicines.

Q. HOW do Emollients * act?

A. By warming and moiſtening the Parts, and diſſolving, and partly diſperſing Obſtructions, they cauſe a Relaxation.

Q. How do Indurants act?

A. By diſperſing the finer and ſofter Particles (as in a Schirrus, from taking too hot Medicines) or by retaining and congealing them (as in an œdematous Swelling, from taking

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* Dr. *Quincy* defines Emollients to be ſuch Things as ſoften and ſheath the Sharpneſs of the Humours, and relax the Solids at the ſame Time. It is eaſy to conceive how theſe ſhould be both effected by the ſame Medicine: For, whether in the Stomach, or other Parts, the Juices have obtained a Sharpneſs, ſo as to vellicate the Fibres, and nervous Parts; thoſe Things which are ſmooth and ſoft, cannot but ſheath their Points, and, by the proper Courſe of Circulation, be brought to ſome convenient Emunctory, without doing any Injury by the Way.

Such Sharpneſs of Parts, likewiſe draws the Fibres into Spaſms, keeps them too tenſe, and frequently occaſions Obſtructions of the worſt Kind: In all ſuch Caſes, Emollients lubricate, and moiſten the Fibres, ſo as to relax them into their proper Dimenſions; whereupon ſuch Diſorders ceaſe.

taking too cold Medicines) they unite the Parts more ſtrongly together.

Q. By what Means do rarefying Medicines operate?

A. By diſſipating the Vapours and Humours with their moderate Heat, they enlarge the Pores of the Parts.

Q. In what Manner do condenſing, aſtringent, and aperient Medicines act?

A. Condenſing Medicines check the Motion of the Parts by their Coldneſs, which being collapſed, are more cloſely united.

Aſtringents * have ſuch a Formation of their Particles, that they can draw towards themſelves, and conſtringe the Parts of the Body, drawing them into the Shape of Wedges; they are cold.

Aperients † act by penetrating deeply the Parts of the Body with their aculeated Particles, and, by throwing off the groſs Humours, they open their Pores and Paſſages; ſome are hot, and others cold.

Q. How do incraſſating Medicines act?

A. By

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* Aſtringents chiefly act, either by the Aſperity of their Particles, whereby they corrugate the Membranes, and make them draw up cloſer; or by thickening the Fluids, whereby they cannot run off ſo faſt as before: Aſtringents therefore ſtand oppoſed to Laxatives; and only differ from Styptics in Degree of Efficacy.

† Aperients, open the obſtructed Paſſages of the ſmall Veſſels and Glands, and, by that Means, promote a due Circulation of the contained Juices. Aperients then coincide with what we otherwiſe call Openers, and Deobſtruents.

by which Means it more eaſily enters the Part affected, and bring off its acrid Serum by the Kidnies, or ſome other Way; and by ſome other of their Particles they aſtringe, and partly deterge. Alſo cicatriſing and epulotic Medicines that, by aſtringing, contracting, and drying an Ulcer, bring it to a Scar in proper Time. Laſtly, Medicines generating Calloſity, that, by aſtringing, and drying the Nouriſhment of the Bones, convert it into a callous Subſtance. Medicines taking away Scars, by mollifying a Scar in any Part, rectify it, by giving it more Warmth.

Q. How do Medicines act, that heal Burns?

A. They open the Pores of the burnt Parts, by their Warmth and Moiſture, and draw out the ſerous and ſharp Humours; or their Particles are of ſuch a Form, that, being applied to a Burn, they hinder the more violent Motion of the Serum, now rendered acrid; or only conſolidate the Part, by deterging, and drying it.

CHAP.

CHAP. XXVI.

Of Medicines that are appropriated to a particular Part and Diſeaſe, and how they act.

IT is certain there are ſome Medicines, that rather cure one Part, than another; for one, by a different Diſpoſition of its Parts, may be admitted into the Pores of ſome Part, and not another; alſo one Medicine, by its greater Activity, may ſhew its Effect in ſome Part, and another may not.

In like Manner, there is no Doubt, but ſome Medicines are more fit to cure ſome Diſeaſes; hence ſeveral Names of Medicines are derived, and ſome are call'd,

Cephalic, or appropriated to the Head.
Opthalmic, to the Eyes.
Otic, to the Hearing.
Arthritic, to the Joints.
Pneumonic, to the Lungs.
Cardiac, to the Heart.
Nephritic, to the Kidnies.
Cyſtic, to the Bladder.

Hepatic, Stomachic, Uterine, or from the different Diſeaſes they chiefly cure: As Alexipharmic, Scorbutic, Antiepileptic, Antiapoplectic, Antifebrile, *&c.*

But

the Reſiſtance being leſſened, they move more freely, and are more readily propelled; ſometimes they make the Part ſwell, and grow red; alſo ſometimes, having raiſed many Humours and Vapours to the Cuticle, whoſe Parts are more denſe than the Skin, when they cannot paſs it, they raiſe it up in a Bladder, and thus they alſo often draw out their own aculeated Particles.

Q. How do Catheretics * operate?

A. Catheretics, and Pſilotra, that take away Hair, operate by cutting and opening the Pores of the Part, and by attenuating, agitating, and inſenſibly diſperſing the Humours contained in them.

Q. How do maturating Medicines act?

A. Maturating, or Medicines promoting Pus, operate becauſe, by their moderate Warmth and Moiſture, and Aptneſs to ſhut up the Pores of the Part, they ſtick to it, and hinder the Efflux of the Spirits, and thus, by encreaſing the Warmth of the Part, they ſuppurate the extravaſated Blood.

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* Catheretics, are ſuch Medicines as conſume, and eat off fungeous Fleſh, growing in Wounds, Ulcers, *&c.*

CHAP. XXV.

Q. HOW do Stiptics act?

A. Stiptics, by their Aſtriction, Refrigeration, or Exſiccation, or their Fitneſs to ſtick to and cloſe up, do contract the open Veſſels, or leſſen the vehement Motion of the Blood and Spirits: By this laſt Manner operate all Medicines thickening the Blood; Opiates and cold Water applied to the Noſtrils, the Teſticles, and other Parts.

Q. How do * Sarcotics, or Medicines generating Fleſh, act?

A. They act by defending the Part, and by their moderate Warmth preſerving the natural Heat thereof, and by taking away the Foulneſs from Wounds and Ulcers, they cauſe a proper Influx of the nutritive Humours into the Parts, and its Converſion into the ſame Subſtance.

Q. How do glutinating Medicines act?

A. Glutinating Medicines that are powerfully drying, are leſs detergent, but rather conglutinate the Lips of a freſh Wound by their Aſtringence: Alſo Vulneraries, ſo called, becauſe they cure Wounds and Bruiſes, taken in Decoctions, Potions, or other Forms, attenuate the Blood with ſome of their Particles, by

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* Sarcotics, are Remedies proper to fill up Wounds, and Ulcers, with new Fleſh; and are the ſame as Incarnatives.

But here it is to be obſerved, that theſe Medicines are not ſo different, as not to agree ſometimes in their Effects; thus Cephalics, for the moſt Part, are Uterines, and Hyſterics, and the Contrary; becauſe hyſterical Diſorders are generally convulſive, and proceed from the Irregularity of the Spirits. Thus all Cardiacs, are Cephalics, becauſe they help both the Heart and Brain; and the Contrary, becauſe the Heart and Brain depend on each other's mutual Aſſiſtance. In the mean while, Cephalics act, by reſtoring the animal Spirits in the Brain, with their volatile Particles, or by rouſing them, or by recalling them, when their Motions are too violently agitated, or by opening the Paſſages of the Nerves, when they are obſtructed in the Brain.

Cardiacs act, by producing, with their volatile Particles, a brisker Rarefaction of the Blood in the Heart, and by raiſing the Spirits, as * precious Stones, Pearls, *&c.* for they correct the Acid, which too greatly inſpiſſates the Blood, or thickens it, when it is too much fus'd, that it can ſcarce retain its Spirits.

Pneumonics act, by lubricating the Bronchia with their ſoft and mild Particles; with others, that are finer, and more inciding, they diſſolve the Viſcidities in them, and, by ſtimulating the interior Membrane, they irritate it to Contraction, and Excretion: But

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* Theſe muſt give Place to more efficacious Medicines uſed in the preſent Practice of Phyſick.

they not only arrive at the Bronchia by the Way of the Blood, but ſome ſmall Part of them are carried to them directly by the bibulous Glands of the Aſperia Arteria.

Nephritics *, and Cyſtics, beſides Diuretics, and Lithontriptics (which I have mentioned before) agree with the Roughneſs of the Bladder, by their ſoft and gently deterging Particles; and are alſo good for the Heat and Acrimony of the Urine.

Stomachics act, by diſſolving the Crudities of the Stomach with their warm and attenuating Particles, and by ſtrengthening it with their Aſtringence, ſo that it more readily contracts and digeſts its Contents.

Hepatics, and Splenics, act, by readily penetrating the Veſſels of the Liver, and Spleen, with their fine, inciding, and abſterging Particles, by opening the Veſſels in them, and by

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* There is ſo great Difference between Nephritics, Diuretics, *&c.* with Reſpect to the Principles, and Manner of Operation, that they require the moſt judicious Application, according to the particular Nature of different Caſes: Thus if, to plethoric Patients labouring under the Stone, we ſhould exhibit hot Subſtances, impregnated with a ſubtile Oil, before Venæ-Section, we ſhould certainly injure the Patient, by bringing on an Inflammation of the Kidnies, and increaſe, rather than abate the Symptoms. On the Contrary, in moiſt, leſs delicate, and robuſt Patients, ſtimulating, and draſtic Medicines, are of ſingular Uſe and Service. But the more ſafe and efficacious Medicines, for procuring a free Diſcharge of Urine, are not only all Kinds of fixed alkaline Salts, but particularly of thoſe call'd Neutral; for they not only diſſolve the tough and viſcid Juices, which obſtruct the urinary Ducts, but alſo, by a gentle Stimulus promote their Diſcharge.

by rectifying their Crudities, if they have any: And further, being impregnated with an alkaline Salt, they every where diſſolve the Blood, and deſtroy the Acids in it.

Alexipharmics, cure the Plague, and other malignant Diſeaſes, and act, by blunting and ſheathing, or by expelling the ſharp and corroſive Particles of the Venom, which coagulated, or too much diſſolved the Blood, or corroded the ſolid Parts, or by fixing the volatile, and attenuating the glutinous Particles which oppreſs the Spirits, as either of theſe Qualities predominate: Whence this Species of Medicine muſt be either hot, cold, incraſſating, or attenuating, *&c.* according to the Caſe.

Antapoplectics act, by impreſſing a greater Motion on the Spirits in the Brain, by their Fineneſs and Volatility, opening the Pores of the Brain and Nerves, and by giving a Tenſion to the Fibres, they excite and ſtrengthen the Brain.

Q. How do Antepileptics act?

A. By correcting the Acrimony of the Spirits, or the Matter vellicating the Origin of the Nerves in the Brain, or by reducing the Hurry of the Spirits to a calmer State.

The End of the Rudiments of Phyſick.

THE

APPENDIX.

Obſerve, that in the former Part, the Doctor anſwers the Queſtions of the Student, but the Reverſe in the *Appendix*.

HAVING now finiſhed the *Principles of Phyſick*, and conſidered them in the foregoing Method, it remains, that you ſhould apply theſe Rules to the Cure of ſome particular Diſeaſes, that I may be ſatisfied you have acquired a Knowledge in the Cure of ſome, and then I ſhall be ſure you will ſucceed in the reſt: You may begin with the * Apoplexy.

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* The Apoplexy is a ſudden Privation of all the ſenſible Motions of the Body, except the Heart and Lungs, attended with a great Depravation, or Suſpenſion of the principal Faculties of the Soul. It differs from a Carus, Lethargy, and Coma, in Regard, in theſe three Diſtempers, the Stupor is not ſo profound, nor all Senſation quite deſtroyed. It differs from a Syncope, as, in

Q. When do you ſay a Perſon hath an Apoplexy?

A. When a Perſon is ſuddenly deprived of the Uſe of all Senſe, both external, and internal, and of all voluntary Motions, the Pulſe ſtill continuing ſtrong, with a difficult Reſpiration, *&c.*

Q. What do you do in this Caſe?

A. That the Diſeaſe might not encreaſe, I would have immediate Recourſe to the moſt powerful Medicines.

Q. Preſcribe the neceſſary Forms, and give me a Reaſon why you have preſcribed theſe, and not others.

A. I begin thus:

1. Let

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in this, there is no ſenſible Pulſe, whereas in an Apoplexy, the Pulſe is perceptible almoſt till Death. It differs from an Epilepſy, in Regard all Motion is not aboliſhed in that, as in this: And it differs from the Palſy, inaſmuch as the Palſy is not attended with any Stupor, nor does it deprive the Patient of Senſe and Perception.

It may be occaſioned by an Interruption of the Paſſage of the Blood towards the Brain; or by any Thing that hinders the Influx of the animal Spirits into the Organs of Senſe, and the Parts of voluntary Motion: Sometimes it is owing to a Redundance of Phlegm, and ſometimes to a viſcid Pituita, wherewith the Brain is oppreſſed, as is obſervable in Winter Apoplexies, and in thoſe of old People. It ſometimes alſo ariſes from an acid Humour, that coagulates the Blood; or too groſs a Lymph, which ſtops up the Nerves; or a Plethora, which oppreſſes them; or Excreſſences within the Cranium, preſſing on the Veſſels; or a Polypus, blocking up the Carotids. In diſſecting Perſons dead hereof, extravaſated Blood is uſually found in one, or both Ventricles of the Brain. It is frequently preceded by a violent Pain in the Head, Loſs of Sight, or Memory; ſometimes by an univerſal Indolence; and ſometimes with a Flux of pituitous Matter by the Noſe and Mouth.

1. Let twelve Ounces of Blood, or more, be inſtantly taken away.

2. Take of the Infuſion of Croc. Metal. one Ounce, Oxymel of Squills half an Ounce (or rather Vinegar of Squills) ſtrong Cinnamon-Water three Drachms; mix it for a Vomit, to be taken with a proper Regimen.

3. After the Operation of the Vomit, let the following Bolus be taken every 6th Hour, repeating it four times.

Take of the Conſerve of Roſemary half a Dram, compound Powder of Crabs Claws one Scruple, Ruſſia Caſtor ſeven Grains, volatile Salt of Hartſhorn five Grains (the Quantity of Salt of Hartſhorn may be increaſed according to the Violence of the Symptoms) compound Syrup of Pionies, enough to make it into a Bolus, drinking after it four or five Spoonfuls of the following Julep.

4. Take Waters of Rue, Black Cherries, Milk-Water, Alexiterial, compound Piony, and compound Briony Water, of each an Ounce and Half; Syrup of Pionies, enough to make it a Julep.

5. Let a large and ſharp Epiſpaſtic be applied between the Shoulders.

6. Take volatile Salts of Hartſhorn two Drachms and Half, to be put into a long neck'd Bottle, and let the Patient frequently ſmell to it, when faint.

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* Sharp Glyſters, with Tincture of Hellebore, *&c.* are here neceſſary; and alſo Sternutatories muſt be frequently uſed.

Q. What do you obſerve in the Cure of this Diſeaſe?

A. I obſerve in this, as in all other Diſeaſes, that there can no general Method of Cure be given, but it muſt be varied according to the different Circumſtances of the Diſtemper. Read the *Principles of Phyſick*, p. 177, and 207.

Q. What is the Effect of Venæ-Section, of the Vomit, and of the Bliſter, that you have preſcribed.

A. By theſe Evacuations, the Preſſure upon the Veſſels of the Brain is diminiſhed, and a Derivation of the Humours is alſo thereby effected: The Phyſician ought to rely upon univerſal Evacuations. In curing this Diſeaſe, Vid. the *Principles of Phyſick*, p. 157, 241, 243, 253, 257, 259, 260, 261, 263, 265.

Q. How many are the Cauſes of an Apoplexy?

A. They are various, and divided into ſeveral Claſſes: Thoſe of the firſt Claſs are, a large Head; a ſhort Neck; the Body corpulent, and fat; a plethoric Habit; and a Redundance of pituitous Humours.

Of the ſecond Claſs are, whatever Cauſes produce ſuch a Change in the Blood, the Lymph, and the nervous Fluid, as to prevent their free Circulation in the Brain.

Of the third Claſs are, whatever Cauſes produce ſuch a Preſſure upon the Arteries, and nervous Veſſels of the Brain, that the Blood and Spirits cannot paſs freely through them; this is commonly the Effect of luxurious Eating and Drinking, and of exceſſive Heat and Motion.

The Violence of the Fit is cauſed by the Age, Conſtitution, and Make of the Patient, as well as by the Vehemence of the Symptoms, ſuch as the intire Deprivation of the Senſes, and Motion; the Reſpiration ſtrong, and deep, accompany'd with a Stertor, and a great Quantity of viſcid Froth about the Mouth.

On the Contrary, the Slightneſs of the Diſeaſe, and the Probability of its Cure, is diſcovered by the Mildneſs of the Symptoms, and the Abſence of the Cauſes above deſcribed.

The Firſt Evening's Preſcription.

Q. WHAT did you do in the Evening? *A.* I preſcribed the following Medicines.

Take volatile Salt of Hartſhorn half a Drachm, divide it into two Parts, and take one immediately, the other about Midnight.

Take the Cephalic Plaiſter (made with a double Quantity of Euphorbium) three Parts; of Gum Galbanum ſtrain'd one Part; of the Oil of Amber, eight Drops. Make it into Plaiſters, for the Feet, to be applied at Night. Continue the Uſe of the Bolus, and Cephalic Julep. Prepare Epiſpaſtics, to be applied to the Inſide of the Arms, and Legs.

Take of the Counteſs of *Warwick*'s Powder two Scruples, of Caſtor half a Scruple, of Salt of Amber four Grains, Syrup of Buckthorn, enough to make it a cathartic Bolus, to be had ready againſt To-morrow Morning.

The firſt Preſcription of the Second Day.

Q. WHAT did you do, the next Day, with your apoplectic Patient?

A. I found the Symptoms ſomething abated, therefore I proceeded in this Manner.

Take of the Decoction for Glyſters twelve Ounces, of Lenitive Electuary half an Ounce, of Hiera Picra one Scruple, of Oil of Rue two Ounces: Make a Glyſter, to be injected at Four in the Afternoon. Repeat the Medicines preſcribed above.

Take Spirit of Sal Ammoniac, Spirit of Caſtor, of each two Drachms, Oil of Amber thirty Drops; take thirty, or forty Drops, in the Julep, when faint.

The Second Preſcription of the Second Day.

Q. HOW did you proceed in the Evening? *A.* I preſcribed in the following Manner.

Take of Diagridium twelve Grains, of Caſtor half a Scruple, of Salt of Amber three Grains, Syrup of Buckthorn enough to make it a Bole; to be taken directly, or early To-morrow Morning, unleſs there be a Stool before; proceed in the Uſe of the cephalic Spirit, taking fifteen Drops of it, in three or four Spoonfuls of the Julep, every 6th Hour.

The firſt Preſcription of the third Day.

Q. WHAT did you preſcribe the third Day?

A. Take of the carminative Decoction twelve Ounces, of the Infuſion of Crocus Metallorum one Ounce and a Half, of Oil of Rue two Ounces, of Species of Hiera Picra one Drachm; make it a Glyſter, to be given at four o'Clock in the Afternoon.

In the mean Time continue the Uſe of the cardiac Bole, to be taken, as before, with the cephalic Julep every 6th Hour: In the Intervals of taking the Bole, fifteen Grains of volatile Salt of Hartſhorn may be given alſo every 6th Hour, and continued three times.

I proceeded in this Manner, changing the Medicines as the Caſe required, till my Patient recovered his Health.

By theſe Means the extravaſated Lymph was evacuated by frequent, and very powerful hydragogue Purges, and alſo by other Evacuations, chiefly very large Bliſters, kept running a long Time.

To prevent a Relapſe, I preſcribed ſtrengthening Medicines, and forbid the Uſe of ſtrong Liquors, but ordered a light, and nouriſhing Diet; and thus my apoplectic Patient was reſtored to his former Health.

*Of the * Epilepſy.*

Q. WHAT are the Symptoms of an Epilepſy?

A. The Patient falls down ſuddenly, loſing all his Senſes, both external, and internal;

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* The Epilepſy, as defined by *Boerhaave*, is a Convulſion of the whole Body, or ſome of its Parts; returning from Time to Time in Fits, or Paroxyſms: The Patient ſeized herewith, falls inſtantly down, grinding his Teeth, and foaming at the Mouth; he frequently ſhakes his Head, Arms, Legs, *&c.* either becoming rigid, or variouſly diſtorted; and, as all the Parts are in a violent Contraction, there is frequently an involuntary Flux of Urine, Seed, *&c.* The Cauſe of this Diſeaſe, this great Phyſician

all the Muſcles, or ſome of them, receive a violent, involuntary, and reciprocal Concuſſion, which alternately ceaſes, and is renewed.

This Diſeaſe appears in ſuch various Shapes, that it has often been aſcribed to Witchcraft, to the divine Diſpleaſure, and the like ſupernatural Cauſes: For there is no Poſture, however diſtorted, in which the Patient does not ſometimes appear.

Nevertheleſs, as all the various Effects of this Diſeaſe conſiſt in the Change of Motion in ſome of the muſcular Parts, ſo they are produced by as many various Contractions of the Muſcles; by the various Influx of the nervous Fluid compreſſing the common Senſorium, and by various Cauſes in the medullary Subſtance of the Brain; all theſe Cauſes are beſt known by an hiſtorical Account of them, which, as I ſtudy Brevity, I am obliged to omit.

The * Extract of Mandrake-Root, is the famous Antepileptic Medicine of *Knifelius*; at

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ſician attributes to too much Action on the motory Nerves, and none on the ſenſative ones. Some account for it from the Abundance of ſharp Humours mixing with the animal Spirits, giving them preternatural, and irregular Motions, and Directions; whence ariſes its Diſtinction from a Syncope, and Apoplexy, which take away all Motion, as well as Senſe.

* Native Cinnabar is greatly celebrated for the Cure of this Diſeaſe, and may be taken from four Grains to a Scruple. *Cheyne* ſays, a Milk Diet alone has cured an inveterate Epilepſy; and I myſelf know an Inſtance of a Servant to a noble Lord, cured by leaving off ſtrong and fermented Liquors, and drinking only Water. Dr. *Colbatch* ſays, Miſletoe cures an Epilepſy, as ſure as the Bark an intermitting Fever.

at leaſt, it is a very neceſſary Ingredient therein.

Take of the Powder ad Guttetam ſix Grains, of Confection of Hyacinth ſeven Grains, of the Confection of Alkermes ten Grains, Syrup of Saffron half a Scruple; make a Bolus, to be repeated every three Hours, to be given in a Spoonful of the following Julep, drinking three Spoonfuls after it.

Take Black-Cherry-Water four Ounces, compound Piony, and diſtilled Treacle-Water, of each half an Ounce, of prepared Pearls half a Drachm, of Loaf-Sugar three Drachms; make a Julep.

Let a Plaiſter be applied to the Navel, made of an Ounce of Gum Caranna, of Oil of Mace, by Expreſſion, one Drachm, and four Drops of the Oil of Juniper Berries. The Patient was a Child eight Months old.

Theſe Medicines blunt, temper, and break the Acids, and diſſolve the obſtructing Matter, without heating the Body.

*Of a * Nauſea.*

Q. WHAT is a Nauſea? *A.* It is a Propenſity to vomit, without Effect.

Q. How is it ſtopp'd?

A. By the Uſe of Acids, or by drinking warm Water, *&c.*

Take Roſe-Water four Ounces, Salt of Wormwood one Scruple, Syrup of Lemons one Ounce; mix it for two Doſes, and you will ſee the Effect. *Vid.* p. 140, *&c.* of Meat and Drink.

A gentle Purge may be given, the Stomach being already ſtrengthened with the Roughneſs of the Acids; but, if it does not yield to theſe Medicines, I preſcribe a Vomit. If it ariſes from a viſcid Matter fluctuating in, and vellicating the Stomach, it is removed by diluting, inciding, and attenuating Medicines. If it proceeds from an Inflammation of the adjacent Parts, it will not ceaſe, till the Cauſe is removed.

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* Nauſea, and Vomiting, only differ from one another, as more, or leſs violent: The Nauſea is properly the Effort the Stomach makes to vomit, which has not always the Effect; and is anatomically defined to be a retrogade, ſpaſmodic Motion of the muſcular Fibres of the Æſophagus, Stomach, and Inteſtines, attended with Convulſions of the Abdominal Muſcles, and the Septum Tranſverſum. The uſual Cauſes are hard Drinking, Fevers, Conſumptions, Laxneſs of the Stomach, occaſioned by Tea, *&c.* Alſo Narcotics, as Tobacco, Paſſions of the Mind, Suppreſſion of Evacuations, inducing a Plethora, foul Stomach, tenacious Humours lodged therein, *&c.*

Q. What do you infer from hence?

A. From theſe Conſiderations, we ſee why Perſons, in acute Diſeaſes, attended with a Nauſea, receive ſo much Benefit from a Purge, or an Emetic, in the Beginning of the Diſeaſe; and further we ſee why, in acute Fevers, the Patient is deſirous of Water, Acids, Summer-Fruits, and cooling Subſtances.

Q. Why have Medicines no Effect, unleſs the Nauſea is ſubdued?

A. Such Diſorders are ſometimes cured by ſudden, unuſual, and ſurprizing Appetite. *Vid.* p. 267. of Purgatives.

Take Tamarinds one Ounce, Leaves of Senna three Drams, Anniſeeds, and Fennel-ſeeds, of each one Drachm, Cinnamon half a Drachm; boil theſe gently in Spring-Water, and, being ſtrained off, to three Ounces, add ſix Drachms of Calabrian Manna cleanſed, and a little Juice of Lemons; mix it for a Purge. Or,

Take of Manna one Ounce and Half, of Oil of ſweet Almonds one Ounce, of Powder of Jalap one Scruple; theſe being taken in Chicken-Broth, do purge extremely well.

Going to Reſt.

Take Confection of *Fracaſtorius* two Scruples, of the ſharpeſt Vinegar half an Ounce, Pepper-Mint-Water one Ounce; make a Draught, to be taken going into Bed.

Of * Obſtructions.

Q. WHAT is an Obſtruction?

A. It is a Stoppage of ſome Tube, or Veſſel, that prevents the Paſſage of the vital Fluids, either ſound, or morbid, ariſing from the Exceſs of the Matter to be circulated, above the Capacity of the circulating Veſſel.

Q. What Method of Cure does it require?

A. It requires ſtimulating, and ſtrengthening Medicines, and ſuch as enliven the Motion of the animal Spirits.

Moreover, as the Thickneſs and Lentor of the Blood may ariſe from ſundry and different Cauſes, ſo it requires various Medicines, and different Methods of Cure, according to the different Circumſtances that happen; and theſe different Cauſes being diſcover'd, will direct the proper Means of Relief.

Q. What is effected by Venæ-Section in Obſtructions?

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* Obſtructions, taken in the general Senſe of the Word, include almoſt all Diſeaſes. The learned *Boerhaave* has treated very largely of them; and in this, as in all his Writings, has treated it with the greateſt Accuracy and Judgment; to whom I refer my Readers.

A. It moderates the Cauſes of the Diſtention.

Q. What is effected by drinking Water, and other ſmall Liquors, warm?

A. They dilute, either taken as Drink, or injected, or otherwiſe applied.

Q. What is the Effect of ſaponaceous Medicines in Obſtructions?

A. Soaps, being compoſed of Oil, and an Alcali, are attenuating.

Q. But when a Fluid is driven into an improper Place, which is not penetrable, and from hence creates Obſtructions, are not many Diſeaſes, and ſome malignant, produced hereby? And does not this Evil deſerve to be attentively conſidered?

A. Moſt certainly; we know this is the Caſe, if we know, 1. That the Cauſes (which are generally remarkable enough) have preceded. 2. That the Contrary to theſe have ſucceeded. 3. Where we plainly diſcern its Effects.

Q. How is the Obſtruction cured?

A. 1. By driving back the impacted Matter, with a retrograde Motion, into the larger Veſſels. 2. By reſolving it. 3. By relaxing the Veſſels. 4. By Suppuration: Which is done by evacuating the Humour, which preſſes the impacted Matter, by a ſpeedy and plentiful Venæ-Section, whereby it is forced back by the Power of the contracting Veſſel. A prudent Phyſician will eaſily ſee how to add many Things more, upon a due Conſideration of the Cauſes.

*Of the * Diſeaſes of Virgins.*

Q. WHAT Remedies do the Diſeaſes of Virgins require?

A. There are ſome Diſeaſes peculiar to Virgins; and, that I may anſwer methodically,

1. When

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* An Obſtruction of the Menſes, or Catamenia, being the efficient Cauſe of moſt Diſorders attending Virgins, it might not be here improper to give an Explanation of the various Hypotheſes which have been framed, of this moſt curious, and difficult Phænomenon, in the whole human Body. It is generally agreed, that the Neceſſity Women are under, for ſome extraordinary Supply, to ſupport them during the Time of Geſtation, was the final Reaſon why this Redundance at other Times was given them. This is agreed on by all; but this is all they agree in. Some, not content with this alone, will have the menſtruous Blood offend in Quality, more than in Quantity; which they argue, from the Pain it gives many Women in the Evacuation. They add, that its Malignity is ſo great, that it excoriates the Parts of Men by mere Contact; that a little of the Blood, dropped on any Vegetable, renders it ſterile; that if a Dog taſtes it, he runs mad, or grows epileptic. Theſe Fables, with many more of the ſame Kind, Dr. *Drake* rejects, as too ridiculous to need Refutation. Others aſcribe this Effect to an imaginary Dominion of the Moon, over the Bodies of Women: This was formerly the prevailing Opinion; though the leaſt Reflection, would have ſhewn the Weakneſs of it! There are two other Opinions, which carry with them great Probability, and are argued with a great deal of Strength and Reaſon: The former, is that of Dr. *Friend*, who maintains this Flux to be the Reſult of a mere Plethora; and to be evacuated only for

Relief

1. When a Woman arrives at her full Growth, and is in good Health, more Blood is

Relief againſt the Quantity. Dr. *Friend*, who has maintained the Cauſe of a Plethora, with the greateſt Strength and Clearneſs, ſuppoſes this Plethora ariſes from a Coacervation, in the Blood Veſſels, of a Superfluity of Aliment; which, he thinks, remains over and above what is expended by the ordinary Ways; and that Women have this Plethora, and not Men, becauſe their Bodies are more humid, and their Blood Veſſels, Lymphatics, Membranes, and Fibres, much laxer, whence all their Cavities, Cells, &c. are more eaſily repleniſhed, and the Humours aggregated in them. Theſe Things concurring, are the Occaſion Women do not perſpire ſufficiently to carry off the ſuperfluous alimentary Parts, till it be accumulated in ſuch Quantity, as to diſtend the Veſſels, and force its Way through the capillary Arteries of the Uterus. It is ſuppoſed to happen to Women, more than the Females of other Species, becauſe of the erect Poſture of the former; and the Vagina, and other Canals, being perpendicular to the Horizon; ſo that the Preſſure of the Blood is directed towards their Orifices: Whereas, in Brutes, they are parallel to the Horizon, and the Preſſure wholly on the Sides of the Veſſels. The Diſcharge (he thinks) happens in this Part, rather than any other, being more favoured by the Structure of the Veſſels; the Arteries being very numerous, and the Veins ſinuous and winding, and therefore more apt to retard the Impetus of the Blood; and, conſequently, in a Plethora, to occaſion a Rupture of the Extremities of the Veſſels, which may laſt till, by a ſufficient Diſcharge, the Veſſels are eaſed of their Over-load.

This is the Subſtance of Dr. *Friend*'s Theory, from whence he very mechanically, and philoſophically, accounts for the Symptoms. *Boerhaave* ſeems to join with him in this Opinion, in an anatomical Account of the Structure of theſe Parts.

But all this is oppoſed by Dr. *Drake*, Dr. *Charleton*, *De Graaf*, and others, who maintain, there is no ſuch Repletion; or, at leaſt, that it is not neceſſary to Menſtruation. The firſt argues, that if the Menſes were owing to a Plethora ſo accumulated, the Symptoms would ariſe gradually, and the Heavineſs, Stiffneſs, and Inactivity (neceſſary Symptoms of a Plethora) would be felt long before the Period was compleated, and Women would begin to be heavy, and indiſpoſed, ſoon after the Evacuation, and the Symptoms daily increaſe, which is contrary to all Experience;

is generated, than the Veſſels can contain; wherefore it is diſcharged every Month *, by the uterine Arteries.

Q. If

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ence; many Women, who have them regularly, having no Warning, nor other Rule to prevent an indecent Surprize, than the Meaſure of Time; which is no ways conſiſtent with the Notice a plethoric Body would give.

The two laſt give into the Doctrine of Fermentation, and maintain the Evacuation of Blood in thoſe Parts, to be the Effect of an Efferveſcence, or Ebullition of the Blood.

Dr. *Drake* improves on this Doctrine of a Ferment, and contends, not only that it is neceſſary there ſhould be a Ferment, but a Receptacle alſo for this Ferment. He goes farther ſtill, and pretends to aſcertain the Place, *&c.* both of the one, and the other, making the Gall Bladder to be the Receptacle, and the Bile the Ferment: This Liquor, he thinks well adapted to raiſe a Fermentation in the Blood, when diſcharged into it in any Quantity; and, as it is contained in a Receptacle, that does not admit of a continual Iſſue, may be there reſerved till, in a certain Period of Time, the Bladder becoming turgid and full, through the Compreſſion of the incumbent Viſcera, it emits the Gall, which, by the Way of the Lacteals inſinuating itſelf into the Blood, may raiſe that Efferveſcence, which occaſions the Aperture of the Uterine Arteries. To confirm this, he alledges, that Perſons of a bilious Conſtitution, have the Menſes either more plentifully, or more frequently, than others; and that Diſtempers, manifeſtly bilious, are attended with Symptoms reſembling thoſe of Women labouring under difficult Menſtruation. If it be objected, that, on this Plan, Men ſhould have Menſes, as well as Women; he anſwers, that Men do not abound in Bile, ſo much as Women, the Pores of the former, being more open, and carries off more of the ſerous Parts of the Blood, which is the Vehicle of all the other Humours; and, conſequently, a greater Part of each is diſcharged through them, than in Women; wherein the Superfluity muſt either continue to circulate with the Blood, or be gathered in proper Receptacles, which is the Caſe in the Bile. This is the Subſtance of what is argued againſt Dr. *Friend*'s Theory; which, it muſt be owned, notwithſtanding theſe Objections, is ſtill the moſt rational, and conſiſtent, that has yet been advanced.

* Whether it may be aſcribed to Luxury, or whatever other Cauſes, this Evacuation often appears at fourteen, and ſometimes ſooner, in the preſent Age.

2. If this redundant Blood is retained, it occaſions a Plethora, a Heavineſs, a Senſe of Weight, Paleneſs, a Pain of the Loins, and Groin, and a Depravation of almoſt all the natural, vital, and animal Functions, which may eaſily be deduced from the great Preſſure of the Veſſels, by the ſtagnating Blood.

The ſame Blood, thus accumulated, is often evacuated by uncommon Paſſages; for Phyſicians have ſeen it diſcharged from the Eyes, the Ears, the Noſtrils, the Gums, the ſalival Ducts, from the Æſophagus, from the Breaſts, from the Skin, alſo by Stool, and Urine, and from Wounds and Ulcers.

4. Or the accumulated Blood often injures all the Viſcera; and, partly by its Putrefaction, and partly by the Injury it does to the Veſſels, produces an infinite Number of Diſeaſes.

5. This Diſeaſe of Virgins is known, 1. From the Age of the Patient. 2. From the Increaſe of the Body, being now full grown. 3. From the Plethora. And, 4th, From the ſubſequent Signs of the Diſeaſe.

6. The Cure requires various Remedies, according to the various Cauſes of the Diſeaſe.

7. Amongſt theſe Cauſes, the Straightneſs of the Pudenda requires the Hand of a Surgeon, with a fit Inſtrument, to make a proper Inciſion, ſufficient to diſcharge the Blood.

But when this Diſeaſe proceeds from the Stagnation of the Blood, its due Fluidity may be reſtored, 1. By Fomentations and Frictions of the Feet. 2. By opening a Vein in the Foot. 3. By uterine Purgatives. 4. By Emmenagogues. 5. By Plaiſters, Fomentations, and Liniments. 6. By ſtrengthening the Veſſels, weakened by the Plethora, with chalybeat and aſtringent Medicines.

When the Source of the Diſeaſe is remov'd, all the Symptoms generally diſappear, or are cured like the Diſeaſe which they moſt reſemble.

Of a * Diarrhea.

Q. WHAT do you preſcribe in a Diarrhea?

A. Take Maſtich three Drachms, Mace one Ounce; boil it in half a Pint of red Wine, in a cloſe a cloſe Veſſel, and add to it, when ſtrain'd off, one Ounce of Cinnamon-Water, and a little Juice of Quinces: This is a Stomachic Decoction for a Looſeneſs in Children of two Years old.

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* Diarrhea's are of diverſe Kinds, according to the Diverſity of the Excrements; ſome being bilious, ſome ſerous, ſome pituitous, and ſome purulent. There are alſo Diarrhea's ariſing from unwholſome Foods, and Sroppage of the other Excretions, particularly Perſpiration. It is a ſtanding Obſervation, that ſuch as perſpire but little, are ſubject to a Diarrhea; and, on the Contrary, People who perſpire much, are commonly bound. In the Cure of Diarrhea's, from whatever Cauſe they ariſe, the Stomach muſt be corroborated, and Sudorifics mix'd with Abſorbents. The Patient to drink ſparingly. In thoſe ariſing from ſharp, fermenting Juices in the Primæ Viæ, the firſt Indication is to diſcharge the ſtimulating Matter, which may be effected by a Doſe or two of Rhubarb. If from ſuppreſſed Perſpiration, the Stools are thin, and the Patient feveriſh, firſt bleed,

Take of the Species of Hyacinth, or Species *Fracaſtorius*, half a Drachm, of Pearls prepared one Scruple; make it into eight Powders, one to be taken every ſixth Hour, drinking after it a little Draught of the following Julep.

Take Waters of Balm, ſmall Cinnamon, and Black Cherries, of each one Ounce and Half, compound Piony-Water one Drachm, Cardiac-Water half an Ounce, prepared Pearls two Scruples, white Sugar-Candy three Drachms; mix it for a Julep, and give two Spoonfuls in the Intervals.

Take of the greater Comfrey-Root two Ounces, of Red Roſes two Handfuls; boil them in a ſufficient Quantity of Milk to one Quart; of the ſtrained Liquor, take four Ounces; to which add the Yolk of one Egg, of the Confection of *Fracaſtorius* two Drachms; mix

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bleed, then give an Emetic; afterwards, Rhubarb; and, laſt of all, Aſtringents. A bilious Diarrhea, ought not to be too ſuddenly ſtopped, but the Humours are to be corrected gradually: Glyſters are likewiſe often ſerviceable. An obſtinate Diarrhea, is to be cured by a Courſe of Vomits, of Ipecacoanha. An habitual one, is greatly relieved by wearing a Flannel Shirt, and keeping the Body warm, as Dr. *Wainwright* obſerves, in treating of the various Cauſes which may occaſion an habitual Diarrhea.

mix it for a Glyſter, to be given at Four in the Afternoon.

Laſtly, Take Wormwood, and Camomile-Flowers, of each two Handfuls, of Cinnamon, Cloves, and Nutmegs, of each half an Ounce; infuſe them in a Quart of the beſt Spirits of Wine; when ſtrained off, and warmed, let a Flannel Cloth be dipp'd in a Part of it, and applied warm to the Child's Belly. Or,

Take of the Confection of *Fracaſtorius* two Drachms, of toaſted Rhubarb two Scruples, of Nutmeg half a Scruple, of Crabs-Eyes one Scruple, of the Syrup of Quinces, enough to make an Electuary; to be taken occaſionally.

Here, if the Diſorder continues, repeat the ſame Medicines as in the Beginning of the Cure.

*Of the * Dropſy.*

Q. WHAT is a Dropſy?

A. When the aqueous Serum burſts its Veſſels, and is lodged in the Cavities of the Body, or by ſtagnating in any Part, gives

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* There are three Species of Dropſy, the Leucophlegmatia, or Anaſarca, the Tympany, and Aſcites: An Exceſs of Seroſities is common to them all; which, being collected, form a Swelling, either over the whole Body, as in the Leucophlegmatia,

gives too great a Diſtention to the Veſſels, it is called a Dropſy.

Q. What is a Hydrocephalus?

A. An Hydrocephalus, is a Collection of Water, either between the external Integuments,

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tia, or in the Belly, proceeding from the Wind incloſed, as in the Tympany; in which there is generally found ſome Share of Water, likewiſe formed perhaps from the Condenſation of the confined Vapour, or the Belly is ſometimes ſo filled, that the Fluctuation of the Water may be eaſily perceived upon moving the Body, as in the Aſcites. The Seat of the Leucophlegmatia is in that Membrane, which Anatomiſts call the Adipoſe, or rather the reticular or cellular Membrane, and which lies between all the Membranes of the Body and the Muſcles,

The Tympany is of more Sorts than one: Sometimes the confined Vapour bloats up the Abdomen, which gives a hollow Sound upon being ſtruck, and that Vapour is an Exhalation from ſome mortified Viſcus; and therefore, when let out, it is extremely fœtid. But yet it ſometimes happens, without any Putrefaction, that an elaſtic Air engendered in the Abdomen, and not finding any Vent, puſhes forwards and bloats up the Integuments by its expanſive Force; and this is not pent up in the Cavity of the Belly, but in the very Inteſtines; which it ſtretches to ſuch a Pitch, as to deſtroy their contractile Power; and then their Capacity is ſometimes widened to an almoſt immenſe Degree.

The Aſcites, or third Species of Dropſy, is formed three different Ways: For ſometimes the Water is extravaſated between the Tendons of the tranſverſe Muſcles of the Abdomen and Peritonæum, and by ſeparating them forms a Tumor; at other Times the Seroſities getting in between the Duplicature of the Peritonæum forces them aſunder, and forms to itſelf a large Receptacle: But moſt commonly the Water is collected and ſtagnates in the wide Cavity of the Abdomen itſelf. *See* Cheſelden's Anatomy, *Book* 3. *Chap* 4.

But there is no Species of Dropſy worſe than that of the Ovaria in Women For theſe Organs firſt grow ſchirrous, then they are inflamed, and at length gangrened; they likewiſe ſwell to a vaſt Size, being gradually ſtretched by the Juices iſſuing out of their burſted Lymphaticks, which are very numerous, hence this Diſeaſe ments, between theſe and the Cranium, or between the Cranium, and the Membranes of the Brain; between theſe Membranes and their

Diſeaſe is ſeldom cured. Theſe are the chief Ways of forming Collections of Water in the Belly, &c. but it is Time to come to the Cure of theſe Dropſies.

In the Leucophlegmatia, an Inciſion ought to be made in the inſide of the Leg, two Fingers breadth above the Ancle, as far in as the cellular Membrane, and no farther, in order to ſerve as a Drain for the Water, which ſhould run for ſome Days. During this Time let the Leg be fomented with a Decoction of emollient and warm Herbs, with an addition of Camphorated Spirits; which Method has been found ſerviceable not only in this Species of the Dropſy, but even in the Aſcites itſelf; nay, in ſome Caſes it has proved an abſolute Cure, by draining off an incredible Quantity of Water for many Days together. But Care muſt be taken, not only in this particular Inciſion, but in all others that are made in any Part of the Body for drawing off the Waters, not to over-exhauſt the Patient's Strength; which is as much affected by this Evacuation, as if the ſame Quantity of Blood were drawn: Wherefore the Patient is to be ſupported by all poſſible Means, leſt what was intended for his Cure, may haſten his Death. And yet it is aſtoniſhing, how great a Quantity of Water, drawn off in this Manner, Hydropicks ſometimes bear to loſe with Eaſe and Benefit. After the Inciſion is made, and warm Fomentations applied to the Part, let a ſtrong Infuſion of bitter Herbs, as Roman Wormwood, Centauri Gentian Root, the leſſer Cardamom Seeds with an Addition of Chalybeat Wine, be taken twice a Day, and the following,

Take Oxym, Scyllit. half a Drachm, Aq. Cinnamom. S. one Ounce, Sp. Lav. C. Syr. Aurant. ana one Drachm, m. f. Hauſtus.

Let proper Catharticks be given as ſoon as the Strength will bear it; and indeed this Diſeaſe requires powerful Catharticks, and a frequent Repitition of them; the chief of which are Elaterium, Calomel, and Jalap.

Order brings me now to the Tympany: And firſt, that Species, which, as I ſaid above, proceeds from a Mortification in the Bowels, is abſolutely incurable: But that which is occaſioned by Air engendered and pent up in the very Inteſtines, is to be treated with moderate Cathartics frequently given, and Carminatives.

their Duplicatures; between theſe and the Brain; between the Foldings of the Brain, and alſo in its Cavities; yet, without producing inſtant Death.

Q. Is

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to expel the Wind interpoſed; together with Diet of very eaſy Digeſtion: Likewiſe bodily Exerciſe ought not to be neglected; and it will be of Uſe to throw up large Glyſters of warm Water; and alſo what *Celſus* adviſes, to make Ulcers in ſeveral Parts of the Belly with a red hot Iron, and keep them running a good while. But if this Operation ſhould appear cruel, it will be proper to lay Bliſters on the Abdomen, and repeat them now and then.

The Aſcites is always a dreadful Diſeaſe, whether its Seat be on the outſide the Peritonæum, or within it, or in the Cavity of the Abdomen. Now it is extremely material in this Caſe to conſider what Evacuations the Patient is capable of bearing: For when he is weak, violent Purging is very prejudicial; and the more the Seroſities are drained out of the Inteſtines, the greater Quantity of them flows into the Belly. As ſoon as the Phyſician obſerves this to happen, he ought to deſiſt, and try to carry off the redundant Water by the Urinary Paſſages. But all Diureticks, even ſuch as are eſteemed the moſt powerful, are of uncertain Effect in theſe Caſes: For thoſe which anſwer in one Patient, fail in another; wherefore various Sorts are to be tried. But, generally ſpeaking, thoſe, into which Squils enter, are the moſt Efficacious. Of theſe the chief are, the Draught with Oxymel above deſcribed, or the freſh Root itſelf given in a ſmall Quantity, as in the following Bole; Rad. Scyll. recent. ſix Grains, Pulv. Ari C. half a Scruple, Z. Z. pulvers. five Grains, Syr. Aurant. q. s. f. Bolus quotidie mane ſumend. Or, Succ. Limon ſix Drachms, Sal. Abſynth. half a Drachm, Aqua Cinnamom S. one Ounce and Half, Acet. Scyllit Syr. Aurant. ana one Drachm, Aqua menth Pip. Spt. half an Ounce, m. f. Hauſtus.

An Infuſion of Broom Aſhes is alſo beneficially ordered by Phyſicians, on Account of its Diuretic Quality; and if it be mixed with Wine, it will often make a good common Drink for the Patient.

The following has likewiſe been found very efficacious;

Take Succ. Cochl. Hortens. half a Pound, Vin. Alb. montan. one Pint and half, Infund. frigide hor. 24 et filtra.

Take

Q. Is not the laſt Species incurable?

A. It is incurable; but the others may be cured by gentle Cauteries, by the Uſe of the Trevine, or Puncture, prudently and ſlowly evacuating

Take Sapon. Venet. G. Ammon ana a Drachm and half, Millep. Pttæ. one Drachm, Rad. Scyll. Pulv. one Drachm, Ol. Junip. q. ſ. f. maſſa. Pilul. No. xii. e ſingul Drachm. de quo capiat iv. mane et veſperi ſuperbibend. ſix Ounces, Vini præſcript.

A ſtrong Decoction of Broom Tops, given with a Spoonful of whole Muſtard Seed, long continued, has been known to effect a Cure, without any Return of the Diſeaſe.

It will perhaps ſeem an uncommon, and even dangerous Practice, to order Narcotics in this Diſeaſe: But they are ſometimes ſo uſeful, that they may be placed among Diuretics. For in Caſe of great Pain they often promote a Diſcharge of Urine; which Effect they produce purely by relaxing the Fibres of the Renal Ducts, which are always conſtringed by Pain. I have frequently ordered the following with good Effect.

Take Menth. Piper, S. Cinnamon. S. ana ſix Drachms, Cinnamom Spt. two Drachms, Lixiv Tart. half a Drachm, Tinctur. Thebaic. gut 40. Syr. Alth. one Drachm, m. f Hauſtus.

Having hitherto treated of Things proper to be taken in this Diſeaſe, it might not be amiſs to ſay a Word or two on a very different Method of Cure, which is, by abſtaining from all Kinds of Drink for a long Time: For even this Method has had its Abettors among the Faculty. But certainly it is very difficult to be ſtrictly purſued; nevertheleſs I have known two Perſons labouring under a very ſevere Aſcites, who had Reſolution enough ſtrictly to practice this Self denying Method, and were both perfectly cured. Their Way of aſſwaging their Thirſt was, by waſhing their Mouth and Throat with the Juice of ſour Apples, and Lemons, and now and then ſwallowing a very ſmall Quantity of it.

But if the Belly cannot be drained of its Load of Water, either by Inciſions made in the Legs, or by any other Helps above mentioned, there will be a Neceſſity of taking a ſhorter Courſe of relieving the Patient, I mean by Tapping. I know that Phyſicians are often averſe to this Operation, grounded on the following Reaſon; *'Tis in vain*, ſay they, *to let out the Water, ſince the internal Parts are injured: Moreover, if it be let out by Parts at different* evacuating the Humour, exhibiting at the ſame Time, Hydragogues and Corroboratives internally; or they are removed by external Diſcutients.

Q. What

different Times, the Belly ſoon fills again; but if it be drawn off all at once, the Patient dies immediately. It is moſt certain, when the Bowels are mortified the Caſe is paſt Hopes; that letting the Water out by Parts is of no Service, and drawing it off all at once is commonly pernicious. "Wherefore, ſays Dr. *Mead*, in the Year 1705, I began to inveſtigate the Cauſe of ſo great an Evil, in order to guard againſt it; and, if I am not miſtaken, (ſays he) it is as follows: By the great Diſtenſion of the Abdomen from the incloſed Water, the Diaphragm is thruſt up too high; the Muſcles of the Belly are ſtretched, the Blood flows with greater Freedom through the upper Blood Veſſels than through the lower; and the Water, by its Preſſure occaſions ſome new Diſpoſition of the adjacent Parts: Whence, upon letting out all the Water at once, the Diaphragm immediately moves lower down than in its natural State it uſually does; the Blood ruſhes with unuſual Impetuoſity into the lower or deſcending Veſſels, and by the Removal of the Preſſure, the Fibres ſuddenly loſe the Extenſion which they had acquired, and the Heat, which the incloſed Water had given them: Hence ariſes fainting, and a Swooning; which returning often, and with increaſed Violence, throws the Patient into cold Sweats, and ſoon carries him off. The beſt Way to prevent ſuch fatal Conſequences, ſeem to be, to preſs the Belly hard, with both Hands, from the upper Part downward, while the Water is iſſuing; and after it all comes away, to ſwathe the Belly tight with a Bandage. When all the Water is drawn off, a Piece of Flannel, dipped in Spirits of Wine, is to be laid on the Abdomen, and then the Bandage rolled tight all over it." Now, from that Time, not only our own, but alſo foreign Phyſicians have followed this Method, which has ſucceeded to their Wiſhes; tho' in Caſes of diſeaſed Livers, Abceſſes of the Stomach, and bad Habits of Body, there is little or no Reaſon to hope that it will be attended with Succeſs: Wherefore ſome Precautions are always neceſſary to be uſed before attempting it; the moſt material of which are laid down by thoſe ingenious Surgeons Mr. *Cheſelden*, and Mr. *Sharp*.

But

Q. What do you remark in a Dropſy of the Thorax?

A. In a Dropſy of the Thorax, which may collect the Serum from various Parts, the Symptoms are nearly like thoſe of an Empyema; but a due Conſideration of the antecedent Cauſes, diſcovers their Difference; this is cured by the Operation of the Paracenteſis, together with the Uſe of proper Medicines.

Q. But if Hydatides, and dropſical Abſceſſes, are formed in the Lungs, by the Collection of the Serum, diſcharged from the Veſſels, and received into large Sinuſſes, what is to be done?

A. This Species of Dropſy, is equally difficult to be known, or cured; unleſs the Means uſed to remove other Symptoms, ſhould, by Chance, effect the Cure.

Q. What is to be done in a Bronchocele?

A. When by any Cauſe the Serum is collected, and ſtagnates in the anterior and conſpicuous Part of the Aſpera Arteria, it often produces a Species of the Bronchocele; which is eaſily known, if obſerved, and may be cured by Puncture, Diſcutients, and by deriving the Humour from the Part affected.

Q. Are

But after all, I muſt confeſs, that, with what Prudence ſoever the Phyſician diſcharges his Duty, the Dropſy ſometimes returns. But notwithſtanding, a high Value ought to be ſet on this Diſcovery, by Means whereof many Lives have been prolonged for ſeveral Years, and not only made tolerably eaſy, but ſometimes comfortable.

Q. Are the Ovaria in Women ever affected with a Species of the Dropſy?

A. The Ovaria are, ſometimes, the Seat of this Diſeaſe; but it is never cured. I have ſeen many Women, that were old and barren, who died of this Dropſy.

Q. Does not the Womb alſo, ſometimes, ſuffer under a Dropſy?

A. It doth; for, ſometimes, the internal Orifice is cloſely ſhut, and ſo much Water is collected in the Cavity of the Womb, that the Belly appears, as if the Perſon laboured under an Aſcites. This Species of the Dropſy is very difficult to be known, by Reaſon of the fallacious Signs of Pregnancy that attend it; but it may be cur'd, by relaxing the Orifice of the Womb, with Fomentations, Vapours, and uterine Medicines.

Q. What is the Dropſy, call'd Anaſarca?

A. When, through the whole ſub-cutaneous Fat, the Lymph either ſtagnates, or is effuſed, which alſo affects the Abdomen, and the Scrotum.

Q. What are thoſe Dropſies, called Aſcites, and Tympanites?

A. When the ſame Water is collected either in the Duplicature of the Peritoneum, in the Cavity of the Abdomen, in the Cavity of the Glands, or in the Veſſels contain'd in the Abdomen, the Diſeaſe is call'd Aſcites; as alſo Tympanites, when the Abdomen is ſwelled with rarefied Vapours, ariſing from the Water, Pus, Ichor, or Air, pent up here, and putrified by the Heat.

Q. What are the further Conſequences of this Diſeaſe?

A. The Feet ſwell, eſpecially towards Evening, and the Swelling is gradually encreaſed; then a Swelling daily encreaſing, appears in the Abdomen; then follows a Difficulty of Breathing, Thirſt, a Senſation of Weight, Numbneſs, Coſtiveneſs, a ſmall Diſcharge of Urine, a ſlow Fever, no Sweat; then appears, a Tumor of the Scrotum, Hydatides, Ulcers, Gangrenes, Bleedings at the Noſe, an Exomphalos, a Sphacelus of the Viſcera, and, at laſt, the Death of the Patient.

Q. How is a Dropſy * cured?

A. By procuring a free Motion to the Lymph, by evacuating the Waters extravaſated in the Cavities of the Body, and by ſtrengthening the Viſcera with Corroboratives, Chalybeat Wines, and Medicines that are gently aſtringent. Read *Pharm. Batean. D. Fuller's Medicin. Extemporan.* Make Uſe of the Paracenteſis in a recent Dropſy, where the Viſcera are ſound.

Take of Gut. Gamb. Diagridium, Reſin of Jal. ſweet Mercury, fifteen Grains of each,

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* The curative Indications are two; the Evacuation of the Water, and the ſtrengthning of the Blood and Viſcera: The firſt is effected by ſtrong Purgatives, and the ſecond by Change of Air, Wine, and other generous Liquors.

Cream of Tartar one Scruple, Syrup of Buckthorn, enough to make it into two Boles for two Doſes.

Take freſh Roots of Valerian, *Engliſh* Iris, and Dwarf-Elder, of each half an Ounce, Horſe-Raddiſh ſix Drachms, Senna half an Ounce, Mechoacan two Drachms, Broom-Aſhes three Ounces; let them infuſe forty-nine Hours, in a cold Place, upon a Quart of Rheniſh Wine; to the Infuſion, ſtrain'd off, add, Salt of Tartar one Ounce, *Sennertus*'s volatile Salt of Tartar three Drachms, Chymical Oil of Camomile one Scruple; drop the Oil upon Sugar, and mix it in a Mortar, and then add it to the Infuſion. The Doſe, half a Pint every Morning, or every other Morning, according to the Strength of the Patient. *&c.*

Take true Caſſamunair one Scruple, Salt of Vipers half a Scruple, Virginian Snake Root five Grains, with the Syrup of Alkermes enough to make it a Bole, to be taken every Night to promote Sweating.

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*Of the * Venereal Diſeaſe.*

Q. I Deſire you would give me a ſhort Deſcription of the Venereal Diſeaſe; the Signs of it; and the Method of curing this Diſtemper.

A. I will do my utmoſt Endeavour to ſatisfy you. The Venereal Diſeaſe, is convey'd from Parents to Children, and is contagious by

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* It is uſually ſaid to have made its firſt Appearance in *Europe* in the Year 1493; tho' others will have it much older, and contend for its being known to the Antients, only under other Names. Mr. *Becket* has attempted to ſhew, that it is the ſame with what among our Forefathers was called the Leproſy; and which in many of our antient *Engliſh* Writings, Charters, *&c.* is called Brenning, or Burning. In order to prove his Point, he has ſearched the Records relating to the Stews anciently kept on the *Bankſide, Southwark*, under the Juriſdiction of the Biſhop of *Wincheſter*. Among other Conſtitutions of theſe Stews, dated 1162, it was appointed, "That no Stew-holder ſhould keep any "Woman that hath the perillous Infirmity of Burning." And in another Vellum Manuſcript, now in the Cuſtody of the Biſhop of *Wincheſter*, dated 1430, it is again ordered, "That no Stew-"holder keep any Woman within his Houſe, that hath any "Sickneſs of Brenning, upon the Pain of making a Fine unto the "Lord of a Hundred Shillings." *Arden* defines this Diſeaſe, called Brenning, Incendium, to be a certain inward Heat, and Excoriation of the Urethra; which Definition, Mr. *Becket* obſerves, gives us a perfect Idea of what we now call a Gonorrhea.

As to the Leproſy being the ſame with this Venereal Diſeaſe, it muſt be owned there are many Symptoms in one Diſeaſe, which quadrate well enough with thoſe in the other; but then the Symptoms in each are ſo precarious, that a great deal of Streſs cannot be laid on them.

Common Tradition ſays, the Venereal Diſeaſe firſt broke out in the French Army, when it lay incamped before *Naples*; on which by Sucking, or giving Suck, by the * Saliva, by Handling, by the Sweat, by the Semen, and by Exhalation. It generally diſcovers itſelf, firſt, in the Part where it is contracted: Nor was this Diſtemper ever found in a Man, or Woman, who was not infected by another. The Infection is firſt diſcovered by the Itching, the Heat, the gentle Inflammation, the whitiſh, ſquamous, corroding, mucous Puſtles, that are incurable by common Remedies; which, ſoon encreaſing, it infects the adjacent, and, generally, the external Parts, with the like ulcerous Puſtules; and, afterwards, the internal Parts; as the Lips, Gums, Palate, Tongue, Fauces, Noſe, Brain, Lungs, Liver, Spleen, Uterus, *&c.*

Theſe Puſtules diſcharge a mucous, tough, greeniſh Sanies, which corrodes the Fleſh, but they ſpread more in Breadth, than in Depth; hence ariſe Chancres in Men, and the Fluor Albus in Women.

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which the *French* call it the *Neopolitan* Diſeaſe, and the *Italians* the *Mal Franceſe*. But others go much higher ſtill, and ſuppoſe it to be the Ulcer *Job* complained of ſo grievouſly: And in a Miſſal printed at *Venice* in 1542, there is a Maſs in Honour of St. *Job*, to be ſaid by thoſe recovered of this Diſeaſe. But the Opinion that prevails moſt among our Phyſicians, is, that the Diſeaſe is of *Indian* Extraction, and that it was brought hither by the *Spaniards* from the *American* Iſles, where it was very common; whence the *Spaniards* call it *Sarva des India*, or *las Buvas*.

* This, tho' countenanced by ſome Authors, is abſolutely erroneous.

In Men, a violent Inflammation of the Penis ſoon terminates in a Gangrene. Then the Teſticles become tumid, painful, and often grow ulcerated, with an inflammatory Tumor of the veſiculæ Seminales; and alſo Caruncles, Stanguries, Eroſions of the Urethra, of the Proſtata, of the Neck of the Bladder, and the Seminal Veſſels. The like Symptoms happen to Women.

Then the Infection is conveyed to the other Members, producing nocturnal Pains of the Limbs, and Stiffneſs of the Joints: Hence there is a Corroſion of the Palate and Cartilages, chiefly of the Noſe; then ſeizing the middle Part of the Bones, it produces a Caries, eſpecially in the Cranium; then the Parts, ſituated upon theſe Bones, riſe into malignant Apoſtemes.

This Diſeaſe alſo raiſes hard Tophs in the Bones, which at firſt create but an obſcure Pain, which grows ſharper by Degrees, 'till at laſt the ſuperincumbent Parts are corrupted: So that it is plain by what Signs this Diſtemper may be known.

Q. How is the Cure performed?

A. A Gonorrhea is cured by a Bath. e. g.

Take of the green Herbs of Mallows, Pellitory of the Wall, Orach, Marſhmallows, of each two Handfuls and a Half, Camomile Flowers two Handfuls, Flowers of Melilot, and Dill, of each one Handful and and a Half, Linſeed bruiſed four Ounces, mix'd together in a little Bag, a Sheep's Head broken to Pieces with the Wool, without the Eyes, Tongue, or Brains; boil all theſe together in a ſufficient Quantity of Spring Water to make a Bath.

2. By Fomentations. e. g.

Take the Roots of Horſe-radiſh, Graſs, and Parſley, of each one Ounce, Herbs of Chervil, Fennel, Parſley, of each one Handful and Half, Seeds of Smallage, Fennel, Parſley, Carraways, Anniſe, and Berries of Juniper bruiſed, of each ſix Drachms; of which make two little Bags, and boil them in equal Parts of Water and Wine, to be applied alternately to the Tubes of the Vagina, and to the Genital Parts.

3. By Injections.

Take of the Decoction of Mercurius Dulcis a ſufficient Quantity, of Honey a ſufficient Quantity; mix it for an Injection * in a Gonorrhea.

4. By Mercurial Purges often repeated.

Take Extract of Rudius fifteen Grains, Sweet Mercury one Scruple, Extract of the Troches of Alhandal, one Grain and a Half to three Grains, Extract of Saffron, and Venice Turpentine, of each enough to make it into Pills.

5. By

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* Injections with Mercurial Ointment diſſolved in Pectoral Apozem, are frequently uſed in the preſent Practice.

5. By Emulſions.

Take of Sweet Almonds, Num. 8. Seeds of Melons, Pompion, and white Poppy, of each half an Ounce, Barley Water one Pint and Half, with a ſufficient Quantity of Sugar Candy, and two Drachms of Sal Prunella, to make an Emulſion. S. A.

6. By Balſamic Medicines.

Take Chio Turpentine one Drachm, white Amber, Balſam of Peru, and of Capaiba, of each half a Drachm, Powder of Liquoriſh enough to make Pills of a moderate Size.

Or, take Balſam Capaiba three Drachms, two Yolks of Eggs, Syrup of Balſam, or Mallows, two Ounces, white Wine half a Pint. M.

7. By abſtaining from all Meats and Drink that excite to Venery, and, on the contrary, by a ſlender cooling Diet.

8. By perſiſting in the Cure, till nothing unuſual diſtills from the Penis, or appears in the Urine.

The Inflamation of the Penis is removed by anodyne, emollient, and diſcutient Cataplaſms, by Fomentations of the like Nature, by liberal Veneſection, and the above mentioned Medecines.

Venereal Buboes are removed by Diſſipation, by Means of ſpecific Plaiſters; by Suppuration, if theſe Plaiſters prove ineffectual; and by Depuration when they are open.

A tumid Teſticle is to be fomented with the Fomentation before mentioned. Veneſection is to be performed in the Arm, and a Plaiſter applied to the Scrotum ; ſuch as Emplaſtrum de Ranis cum Mercurio Mynſicti, *&c.* till it returns to its natural State, otherwiſe it muſt be cut off,

Puſtules and Chancres are to be corroded to the Quick with Mercurials, and then cured by Degrees, with the gentler Preparations of the ſame Kind.

N. B. We are continually to uſe the internal Medecines mentioned above.

The Fluor Albus in Women, is cured by the ſame Medicines ; but chiefly by ſtrong detergent Fomentations and Mercurials : But when the Puſtules are diſperſed all over the Body, with nocturnal Pains, and large Buboes, Salivation is neceſſary.

Concerning theſe Things, read the Chapter of contagious Diſeaſes in my Principles.

Of Fevers in General.

1. WE are now to explain the Nature of a Fever, the inſeparable Companion of an Inflamation ; the Cauſe of many Diſeaſes, and of Death ; and frequently alſo of a Cure.

2. And becauſe it is generally eſteemed to be of a very abſtruſe Nature, we are to uſe the greateſt Caution in our Reſearches.

3. Nevertheleſs, from the great number of Symptoms that generally attend a Fever, it is eaſy to fall into Errors; and there may be a Fever without theſe Symptoms.

* 4. That we may avoid theſe Errors it is neceſſary, that out of an infinite Number of Symptoms, we ſhould chuſe thoſe only, which always attend every Kind of Fever; which when they are known to be preſent, declare to all Phyſicians that there is a Fever, and which, when they are abſent, they judge that a Perſon is free from a Fever.

5. Therefore from a Knowledge, and due Conſideration of theſe Symptoms, the particular Nature of a Fever is to be diſcovered.

6. In every Fever there is a Shivering, a quick Pulſe, and Heat, at different Times, and in various Stages of the Diſeaſe.

7. When theſe three Symptoms ariſe to any great Degree, and are attended with Danger, it is called an acute Fever.

8. But where they proceed ſlowly, either with, or without Danger, it is called a ſlow Fever.

9. Both theſe Species of Fevers are, either common and epidemical, or only affect particular Perſons.

10. Thoſe are called acute febrile Diſeaſes which are accompanied with an acute Fever; and thoſe are called chronical febrile Diſeaſes which are attended with a ſlow Fever.

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* Read *Van Swieten*'s Commentaries on *Boerhaave*.

11. Hence it is, that all theſe febrile Diſeaſes are not to be explained, without a previous Knowledge of the Nature of that Fever with which they are attended.

12. Which Knowledge is to be acquired from the Conſideration of the three common Symptoms, of Shivering, a quick Pulſe, and Heat.

13. Though theſe Symptoms are preſent at ſome Time in every Fever, yet the Quickneſs of the Pulſe is the only Symptom that continues from the Beginning to the End of the Diſeaſe, and by which a Phyſician judges that a Fever is preſent.

14. Therefore, whatever Knowledge a Phyſician thus acquires of a Fever, depends entirely on the Velocity of the Pulſe.

15. The proximate Cauſe therefore of this Velocity of the Pulſe, is likewiſe the proximate Cauſe of the Fever thus known.

16. This Cauſe therefore, may be a too quick Contraction of the Heart. Or,

17. A too quick reciprocal Influx of the Spirits and Blood into the Muſcles and Cavities of the Heart.

18. Almoſt all Fevers hitherto obſerved, that ariſe from an internal Cauſe, begin firſt with a Senſe of Cold and Shivering, and this Senſation is greater or leſs, ſhorter or longer, internal or external, according to the Conſtitution of the Patient, or the Nature and Cauſe of the Fever.

19. In the Beginning therefore of every Fever, from an internal Cauſe, the Pulſe is quick, ſmall, and often intermittent; and there is often a Paleneſs, Coldneſs, Rigor, Tremor, and Inſenſibility of the extreme Parts.

20. Hence it is plain, that the ſanguineous Humours ſtagnate in the Extremities of the minute Veſſels, and that the Heart, at the ſame Time, is irritated by ſome unuſual Cauſe.

21. From which two Circumſtances, we underſtand the Cauſe of all the Symptoms that appear as before related.

22. In every Fever, introduced by theſe Symptoms, there ariſes an Heat, which is greater or leſs, ſhorter or longer, internal or external, univerſal or local, according to the Difference of Fevers.

23. As the Heat ſucceeds the Fever already produced, ſo the former muſt be rather the Effect, than the Cauſe of the latter.

24. Therefore, a quick Contraction of the Heart, and an increaſed Reſiſtance of the Capillary Veſſels, compleats the Idea of every acute Fever.

25. Both theſe Circumſtances may be produced in a live Animal by an infinite Number of Cauſes; and as they may happen both at the ſame Time, or ſeparately, ſo when one is produced, the other eaſily follows.

26. Wherefore the proximate Cauſe of a Fever, which conſiſts in a quick Contraction of the Heart, and the increaſed Reſiſtance of the

Capillary Veſſels, may have an infinite Number of proximate Cauſes.

27. Which are either ſingular, and peculiar to ſome Perſons; or univerſal, and common to many; and theſe depend on the Air, Diet, and the Patient's Way of Living.

28. The Cauſes therefore of a Fever, are either Particular, or Epidemical.

29. The proximate particular Cauſes may be reduced to five Claſſes; which are,

Firſt, Acrid Aliments, Drinks, Medicines, or Poiſons; when either they have ſuch a Property, that they cannot be digeſted; or taken in ſuch a Quantity, that they irritate, ſuffocate, obſtruct and putrify.

Secondly, The Retention of ſuch Things in the Body, as ought to be evacuated, proceeding from Cold, and a gloomy Diſpoſition of the Mind, improper Aliments, Drinks, Medicines, Poiſons, too much Eaſe, a Remiſſion of uſual Exerciſes, Obſtructions, *&c.*

Thirdly, Too much Exerciſe of the Mind or Body; or the Body being over heated.

Fourthly, External Applications of an acrid, pungent, corroding, lacerating, cauſtic, and inflamatory Nature.

Fifthly, Whatever produces a great Change in the Humours, and their Motion; ſuch as many internal and external Things; as Hunger, great Evacuations, the Pus, Water, and chor in a Dropſy, or Empyema; an acrid Serum collected in any Part, the Bile heated, an Inflamation, Inflammation, a Suppuration, a Gangrene, a Cancer, long Watchings, intenſe Study, and Venereal Exceſſes, *&c.*

30. The Effects of a Fever are, a quicker Expulſion and Propulſion of the Fluids, an Agitation of their ſtagnating Parts, a mixing them together, a Prevalence over the reſiſting Matter, a Concoction of the Humours, a Secretion of them when concocted, and a Criſis of that, which by its ſtimulating and coagulating Quality produced the Fever; a Change of Health and Soundneſs into a morbid State; which produces a Diſpoſition fit for bearing thoſe Things to which the Patient was leſs accuſtomed before, and producing Thirſt, Heat, Pain, Anxiety, Weakneſs, Wearineſs, a Senſe of Weight, and Loathing of Food.

31. The ſooner the Viſcidity of the Humours is reſolved, and the Irritation allay'd, the ſlighter, ſhorter, and more ſalutary is the Fever, and the contrary. Fevers are alſo various according to the different Degrees of this Irritation and Viſcidity.

32. Hence it is, that Medicines have frequently the ſame Effect in Fevers as in other Diſeaſes.

33. Hence alſo the Beginning, Increaſe, Height, Decreaſe, Criſis, Change, and Cure of Fevers, are different in acute, and particular Fevers.

34. A Fever terminates in Death, in ſome other Diſeaſe, or in Health.

35. A Fever terminates in Death when the Solids are deſtroyed, by too ſtrong a Power acting on them; or the Fluids are ſo depraved that they obſtruct the Vitals; or thoſe Veſſels, through which new Fluids ought to be conveyed, in the Room of thoſe loſt; hence ariſe Inflammations, Suppurations, and Gangrenes, in the vital Viſcera, the Heart, the Lungs, and Cerebellum; or apthous, Ulcers in the firſt Paſſages, which are the frequent Cauſes of Death in Fevers.

36. A Fever terminates in ſome other Diſeaſe, when either by a too violent Agitation it injures the Veſſels, and evaporating the more fluid Parts of the Humours, inſpiſſates the Reſt; or when by a too weak Action it has not Force to reſolve the Coagulations of the Fluids; or when itdepoſites the critical Matter in ſome obſtructed, dilated, or ruptur'd Veſſels: Hence ariſe red Spots, Puſtules, Ereſypelas, Meaſles, Small Pox, Phlegmons, Buboes, Inflammations of the parotid Glands, Abſceſſes, Gangrenes, Sphacelus's, Schirrus's, *&c.*

37. A Fever terminates in Health,

Firſt, When by its Force it ſubdues, reſolves, renders moveable, and carries off by inſenſible Perſpiration, the material Cauſe of the Fever; and likewiſe checks its Impetus, by reſtoring an equable Circulation: This univerſal Reſolution. nearly reſembles the Reſolution in the Inflammation of a particular Part.

Secondly, When the Matter of the Diſeaſe (being, by the Force of the Fever, ſubdued, reſolved, and rendered moveable) ſtill retains a certain Quality, which reſiſts the equable Circulation, and ſtimulates the Veſſels; from hence exciting ſome ſenſible Evacuation, it is expelled, by Sweat, by Spitting, a Diarrhea, Vomitting; a copious Diſcharge of Urine, happening critically after the Concoction of the Matter; the State of the Diſeaſe generally terminates within fourteen Days.

38. A Fever alſo terminates in Health, when the Matter of the Diſeaſe being, by the Force of the Fever, ſubdued, reſolved, rendered moveable, and again aſſimulated with the ſound Humours, circulates without any Criſis, or any bad Conſequence.

39. The Genius, Difference, and Duration of acute Fevers, if obſerved from the Beginning, through the Increaſe, to the Height of the Diſeaſe, enables us to foreſee its Event, Changes, and Termination.

40. From all the Circumſtances before related, the general Diagnoſtics, and Prognoſticks of Fevers, may be eaſily diſcovered.

41. The general Cure of Fevers is moſt ſucceſsfully obtained,

Firſt, By preſerving that Strength on which Life depends.

Secondly, By correcting and expelling the acrid irritating Matter.

Thirdly, By diſſolving and expelling Viſcidities.

Fourthly, By mitigating the Symptoms.

42. The Strength on which Life depends is ſupported by Aliments, and Drinks of eaſy Digeſtion, oppoſite to Putrefaction, allaying Thirſt, fit for increaſing rhe Appetite, and contrary to the known Cauſe of the Diſeaſe.

43. Food is to be given when the Fever is abſent, or at leaſt when its Force is weakeſt.

44. Alſo in ſmall Quantities frequently repeated, leſt the Viſcera ſhould be oppreſſed, or ſome Change thereby effected.

45. The Quantity and Quality of the Aliments are determined;

Firſt, From the Probability of the Duration of the Fever, either from one, four, ſeven, nine, eleven, fourteen, twenty one, thirty, forty, or ſixty Days; for as much Food is to be given, as will ſuffice to ſupport the Strength, and render it fit for Concoction, and a Criſis: The ſhorter the Diſeaſe, the leſs and weaker ſhould the Aliments be, and the contrary.

Secondly, From the Age of the Patient; * for the younger and older the Patients are, they ſupport Hunger with more Difficulty.

Thirdly, The Degree and Vehemence of the Diſeaſe, when known, require Aliments of different Qualities and Quantities: In the Height, a ſmall Quantity of the lighteſt Food is to be uſed; but in the Increaſe, and Decline, more Food may be given; and the more alſo, as the Diſeaſe is more diſtant from its higheſt Degree.

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* Middle aged People ſupport Hunger beſt.

Fourthly. From the Place where the Patient lives; for thoſe who live near the Æquator conveniently bear a light Diet, which thoſe who live near the Poles with Difficulty ſupport.

Fifthly, From the Seaſon of the Year, becauſe the Summer requires light, the Winter ſtronger Food.

Sixthly, From the Cuſtom and Conſtitution of the Patient; for the Perſon who, when in Health, lives luxuriouſly, and digeſts it eaſily, requires more, becauſe the Veſſels and Viſcera were accuſtomed to it.

Seventhly, And laſtly, from the Senſe of Lightneſs, or Weight, following the uſe of the Aliments.

46. Any external, irritating Subſtance, ſuch as the acute Fragments of Glaſs, Metal, Wood, Stone, and Bones; or ſtimulating, corroding, and veſicating, cauſtic, ſeptic and poiſonous Subſtances, are with all Expedition to be removed, and the Parts injured are to be fomented with viſcid mucous, mild, oleous, anodyne, and gently aperient Fomentations.

47. An acrid irritating Subſtance lodged internally, which cauſes an Inflammation, Suppuration, Gangrene, Sphacelus, Cancer, carious Bone, Ichor, Pus, and acrid or ſtagnant Lymph, is to be removed, or correſted, according to the Rules of Art.

48. An acrid irritating Quality in the Fluids, may, and ought to be removed or correct-

ed, by the Uſe of the ſix Non-naturals; and by various Remedies adapted to the known State of the Diſorder.

Firſt, Diſorders proceeding from too much Motion, are to be removed by Reſt, both of the Body and Mind; and by moiſtening, diluting, mild, and lenient Medicines.

Secondly, Diſorders from too hot an Air, are likewiſe removed by temperating the exceſſive Heat, by cooling Exhalations, chiefly by Plants fit for this Purpoſe; by drinking ſubacid Water, a little ſtimulated with a ſmall Quantity of ſubacid Wine; by ſubacid, gently demulcent, and moderately ſalted Food, and by Medicines of the ſame Nature.

Thirdly. Diſorders from too moiſt an Air; by correcting the exceſſive Moiſture of it, with large Fires of aromatic and reſinous Woods, and the Exhalation of aromatic Subſtances.

Fourthly, Diſorders from an acrid, putrefied Air; by correcting the Air by throwing Nitre, Gunpowder, Vinegar, and Salt upon live Coals.

Fifthly, Diſorders from the Paſſions; by making Uſe of Reaſon, and the contrary Affections, by Variety of Objects, Anodynes, and Opiates.

Sixthly, From an acrid Food; by diluting the Acrimony, and by checking, abſorbing, and changing it into a neutral Salt; and this is effected by the aqueous and gelatinous Parts of Animals, by oleous and cretaceous Subſtances, Shells of Fiſhes, Crabs Eyes, pinguious Earths, fixed alcaline, volatile, ſimple, and compound Salts.

Seventhly, When the Diſorder proceeds from too great a Quantity of Food conſtringing the Stomach, it is to be removed by diluting with aqueous Medicines, by Faſting, by Emetics, and Purgatives.

Eighthly, From acrid, fermented Liquors, it is removed by the Medicines, Num. 5. 6.

Ninthly, From over Watchings, the Cure is performed by Num. 1. 2. 5.

Tenthly, If the Fever proceeds from a Retention of the excrementitious Humours, their Paſſages muſt be lubricated, and their proper Emunctories opened; in the mean Time, the vital Powers that expel them, muſt be ſtimulated and increaſed, both by internal and external Remedies.

49. The Emunctories are opened by reſolving the Matter fix'd therein, and by relaxing them when obſtructed; this is done by Bathing, Fomentations, Frictions, Abraſion of the Hair, and cleanſing of the Skin; and alſo by Veſicatories, and Alexipharmics.

50. Whatever ſtagnates at the Extremities of the conical Veſſels, by Reaſon of too great a Quantity of Blood compreſſing the Veſſels, is rendered fluid by diminiſhing the Quantity of Blood by Veneſection; we learn this by the Signs of a Plethora. *Vide the Rudiments of Phyſick.*

51. What adheres to the Extremities of the capillary Veſſels, on Account of ſpaſmodic Contractions of their Fibres, by which their Capacities are leſſened, is reſolved by relaxing the Fibres; which is performed by moiſtening lenitive, diluting, reſolving, and abſterging Remedies; and by removing the Cauſe of the acrid Contraction, which is done by aqueous Medicines, both external and internal, applied warm, or taken inwardly; together with the ſmootheſt, moſt taſteleſs, and mildeſt oleous Subſtances.

52. What adheres by its own Viſcidity and Lentor, is reſolved by various Medicines; the principal of which conſiſts in a due Government of the Fever itſelf, that by Means thereof, the Coagulation may be reſolved, (30, 32, 36, 37.) Therefore it is neceſſary, ſo to moderate the Force of the Fever, as

Firſt, To prevent Inflammations, Suppurations, Gangrenes, and Sphacelus's; the Danger of which appears from the Violence of the Symptoms, chiefly Heat, compar'd with the Strength of the Veſſels.

Secondly, That the more fluid Parts of the Blood may not be diſſipated by its violent Motion; the Signs of which are a Dryneſs of the Noſtrils, Eyes, Throat, and Tongue, an Hoarſeneſs, a Dryneſs of the Skin, a ſmall Quantity of Urine, and a ſmall, quick, and unequal Pulſe.

Thirdly, That before the Concoction of the ſebrile Matter, the Fever may not become too weak, ſo as not to be capable of ſubduing, reſolving, moving, ſecreting, and excreting the Cauſe of the Diſeaſe: This State is known by a general Languor of all the vital Actions, before the Signs of Concoction appear.

53. If the febrile Motion is exorbitant, it muſt be moderated by Abſtinence, or a very ſlender Diet, by aqueous Drinks, by a cool Air, by calming the Paſſions, by Veneſection, by cooling Glyſters, and by mild, aqueous, glutinous, cooling, anodyne, and opiate Medicines.

54. If the Fever is too languid, it muſt be raiſed by a cardiac Regimen, conſiſting of the more generous Sorts of Food and Drinks, by a warm Air, by exciting the Paſſions, by acrid, volatile, aromatic, fermented Medicines; by Frictions, Heat, muſcular Motion, Baths and Fomentations.

55. Next to the due Regulation of the febrile Motion, the beſt Remedy againſt the Viſcidity of the Juices, is reſtoring the elaſtic Force of the Veſſels, by leſſening the Quantity of the Fluids by copious Veneſection, ſoon performed, and from a large Orifice; and at the ſame Time, or ſoon after, increaſing their Motion by ſtimulating Medicines.

56. And laſtly, the viſcid Juices are rendered fluid, by diluting with aqueous Drinks, Baths,

Fomentations, and Glyſters, uſing Frictions at the ſame Time.

57. And theſe Drinks have a better Effect if taken warm, if reſolvent Salts, as Nitre, are mixed with the aqueous Fluids; and if gentle, aromatic, bitter, and lacteſcent cooling Vegetables are boiled in them.

58. But that theſe (56, 57.) may operate efficaciouſly, Veneſection is to precede their Uſe, for this facilitates their Ingreſs, their Mixture with, and Action upon the Blood.

59. As ſoon as theſe Remedies (52, 53, 54, 55, 56, 57, 58) have diſolved the Viſcidity, by a Continuance, or Increaſe of the ſame, it is forced through the Veſſels or expelled; ſometimes however it may be ſo far corrected as to require no Expulſion.

60. The Symptoms uſually attending an acute Fever are, Cold, Tremors, Anxiety, Thirſt, Nauſea, Eructations, Vomiting, Weakneſs, Heat, Reſtleſſneſs, Dryneſs, Delirium, Coma, Watchings, Convulſions, Sweats, Diarrheas, and inflammatory Puſtules.

61. All which ariſing from the Fever (24, 30) ceaſe when that Cauſe is removed: (37, 38, 41, to 60) therefore they require no particular Method of Cure, if they can be ſupported, without endangering Life, till the Termination of the Fever.

62. But theſe Symptoms often ariſe from an Endeavour of the vital Powers to form a Criſis, and expel the critical Matter; and then they

precede, accompany, and follow the Criſis, in which Caſe the ſalutary Work of Nature muſt not be diſturbed.

63. But if any of theſe Symptoms are unſeaſonable, or too ſevere to be ſupported without Danger of Life; if ſo troubleſome, as to render the Patient inſupportably uneaſy; if there is Danger of their producing ſome more violent Diſorder, then they muſt be mitigated by proper Remedies; always having regard to the Cauſe and State of the Diſtemper itſelf. I ſhall proceed to examine the particular Symptoms.

Febrile COLDNESS.

64. Coldneſs in the Beginning of acute Fevers, ariſes from a decreaſed Attrition of the Liquids with each other, and with their Veſſels; a Diminution of the circulating Motion, a Stagnation of the Liquids at the Extremities of the Veſſels, a diminiſhed Contraction of the Heart, or a leſs Evacuation of its Ventricles, and a leſs Influx of the Spirits from the Cerebellum.

65. This Coldneſs, if it is great and of long Duration, cauſes polypous Concretions in the larger Veſſels near the Heart; and in the ſmall Veſſels an Evacuation of their Fluids; in both Caſes many ſevere Diſorders are excited.

66. Hence it appears, why intenſe Coldneſs in the Beginning of an acute Fever, is a very bad Preſage; and why the Fever is dangerous

in Proportion to the Cold perceived upon its firſt Attack; and why in the Beginning of the Plague, an exceſſive Coldneſs is ſucceeded by an exceſſive Heat.

67. If any Attempts are made to remove the Coldneſs, in the Beginning of acute Fevers, by any very ſtimulating Medicines, a Foundation is often laid for an incurable Inflammation; for this Reaſon all acrid, ſaline, oleous, and aromatic Medicinesare pernicious in this Caſe.

68. But it is cured moſt ſucceſsfully in the following Manner:

* Take of Barley Water a Pint and a Half, Chriſtal Mineral four Scruples, Plague Water two Ounces, Compound Syrup of Pionies enough to make it palatable, mix it for a Julep, to take with the following Bolus, every ſixth Hour.

Take of Chriſtal Mineral half a Scruple, Tartar vitriolate ſeven Grains, Conſerve of Hyps, and Spirit of Vitriol, of each a like Quantity, enough to make it a Bole, drinking after it a Draught of the Julep before preſcribed.

Take a Sheep's Head with the Wool on, broke to Pieces, without the Tongue and Brains, boil it in a Quantity of Water till reduced to three Quarts, uſe the ſtrained Liquor for a Fomentation, Vapour, Bath, or Lotion.

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* Nitrous Medicines and neutral Salts, are chiefly uſed in the preſent Practice.

Take Palm Oil two Ounces, Oil of Mace by Expreſſion, and Compound Spirit of Lavender, of each one Drachm, to be uſed by gently rubbing it over the Body.

69. Which Medicines being uſed at firſt, often cure, and prevent very great Diſorders. (65)

A febrile TREMOR.

70. A Tremor is a wavering of the Muſcles, between a State of Tenſion and Relaxation; the relaxing and diſtending Cauſes, ſuddenly and involuntarily ſucceeding each other, which proceeds from an alternate Ceſſation and Revival of the Influx of the Spirits and the Blood into the Muſcles: In the Beginning of a Fever therefore, it ariſes from a partial Stagnation both of the Blood and Spirits; but in the End of a Fever, from a Deficiency of them, by being greatly waſted.

71. A Tremor, if of long Duration, obſtructs the Circulation of the vital Humour, and produces all the bad Conſequences ariſing therefrom.

72. Hence we know the Diagnoſtic, and Prognoſtick Signs of a febrile Tremor, and why it is attended with Coldneſs (64); why a great Tremor is ſo dangerous a Symptom, why there is a Tremor in the Paſſions of the Mind, why in approaching Death; why it

follows all great Evacuations, and upon drinking too much Liquor of any Kind.

73. A febrile Tremor is cured, by reſtoring an equable Influx of the Blood into the Arteries, and its equal Preſſure upon them, and alſo of the Spirits into the moving Fibres; this is effected in the beginning of a Fever, by the uſe of the Remedies that diſſolve Viſcidities, and reſtore the Strength, (from 49, to 60.) But at the End of a Fever, by whatever reſtores the waſted Fluids, and corroborates the Fibres and Viſcera. For this Purpoſe the following Preſcriptions are intended:

Take of Compound Powder of Crab's Claws one Scruple, Virginia Snake Root ſeven Grains, Diaphoretic Antimony fifteen Grains, Confection of Fracaſtorius half a Drachm, Syrup of Saffron enough to make it a Bole, to be taken every ſixth Hour, drinking after it a Draught of the following Julep.

Take of Waters of black Cherry, Borrage, and Balm, of each three Ounces, Compound Piony one Ounce and Half, prepared Pearls four Scruples, Sugar Candy enough to make it a Julep: A Draught to be taken often in the Intervals; the Sweating, when begun, is to be continued by ſmall Draughts, frequently repeated, of Sack Whey, or ſmall Beer with a little Mace boiled in it.

Take of true Armenian Bole, and red Coral prepared, of each one Scruple, Confection of Fracaſtorius one Drachm, Treacle Water two

Ounces, Black Cherry Water three Ounces, mix for two Doſes, one to be taken ſix Hours after the other.

Take Barley Water a Quart, Syrup of Raſberries one Ounce and Half, of white Poppies half an Ounce, Spiritus Salis Dulcis two Drachms, make it a Julep, to be drank at Diſcretion, in the interval of the two Doſes.

Proceed cautiouſly and ſlowly in the Uſe of theſe Medicines, from the firſt to the laſt Stage of the Diſeaſe.

Febrile ANXIETY.

74. A febrile Anxiety, is cauſed by ſome Impediment to the Paſſage of the Blood from the Heart; and from hence an Impoſſibility of its Circulation through the Ramifications of the Pulmonary Veſſels, and thoſe of the Aorta; or, it is cauſed by a Spaſm of the contracted Veſſels, or an inflammatory Spiſſitude of the Blood, rendering it incapable of Circulation.

The like Symptom is produced, by an Impediment to the Paſſage of the Blood through the Vena Porta, from the ſame Cauſes: Since therefore all the venous Blood, brought by the cæliac and meſenteric Arteries cannot return, it ſtagnates, diſtends the Veſſels, and reſiſts the freſh Influx of the Blood into the Arteries, hereby producing fatal Conſequences: For this Reaſon it is neceſſary to obſerve theſe

Cauſes, in every acute Diſeaſe with the greateſt Accuracy, and to remove them by all poſſible Means.

75. If ſuch an Anxiety continues long about the Heart, and vital Parts, it will produce polypous Concretions, Inflammations, ſudden Gangrenes, attended with intollerable Uneaſineſs, and Death ſoon will follow: But when the Cauſe is ſituated in the Hypochondria, it will produce an exceſſive Sickneſs at the Stomach, the other Viſcera not having ſo acute a Senſation; this is ſucceeded by ſudden Putrefactions of the Blood in theſe larger and weaker Veſſels, whence Gangrenes, Putrefaction of the Liver, and a fatal Dyſentery ariſes from this Putrefaction.

76. From hence the Phyſician may underſtand the Nature and Cauſe of ſuch an Anxiety, and what it preſages; and will diſtinguiſh between that kind of Anxiety, proceeding from a nervous Cauſe, without a previous Fever, and this Anxiety from an acute Fever, which declares itſelf by its own proper Signs; thence comparing this with the Violence, Duration, and the Place of the Diſorder, he will be able to diſcover its Nature, and to learn why, in almoſt all Diſeaſes, at the Approach of Death, the laſt Scene of the Tragedy is cloſed with extreme Anxiety; why a convulſive Anxiety is attended with little Danger, but an inflammatory Anxiety with great Danger; and why Uneaſineſs, Reſtleſsneſs,

Sighing, difficult Reſpiration, and obſtinate Want of Sleep, in ſuppuratory, or inflammatory Diſeaſes are the Tokens of Death.

77. Hence alſo it appears, that various Methods of Cure are required, to mitigate the Severity of this Diſorder; the Diſcovery of which depends on the right Knowledge of the Nature of the Symptoms.

When therefore Anxiety is found to proceed from a convulſive Cauſe, it is removed by Veneſection, by Veſicatories, and by Alexiterials mix'd with Opiates.

Take of Powder of Crabs Claws one Scruple, Diaphoretic Antimony eight Grains, Caſtor five Grains, Engliſh Saffron three Grains, with Confection of Alkermes, enough to make it a Bole, to be taken every third or fourth Hour, drinking after it a Draught of the following Decoction:

Take of Roots of Eringo, and Spaniſh Scorzonera, of each two Ounces, China Root half an Ounce, Raiſins of the Sun one Ounce and Half, boil them in three Quarts of Spring Water to two Quarts; infuſe in it three Drachms of good Cinnamon, and half an Ounce of Fennel Seed, make it an Apozem of which the Patient may drink freely.

Let Veneſection be uſed a ſecond Time, and repeated almoſt to Fainting; apply more Bliſters to the inner Part of the Arms and Thighs, give Vomits and Purges, &c. if the Caſe requires them; keep the Mind calm, relax the

Fibres, the Veſſels, and the Viſcera, quiet the Tumult of the Spirits by Anodynes and Narcotics.

If the Anxiety is excited by an inflammatory Viſcidity of the Blood, the foregoing Preſcriptions are ſerviceable; and beſides theſe let the Patient drink copious Draughts of warm aqueous Liquors, in which farinaceous Vegetables have been boiled, impregnated with Honey and Nitre, ſomewhat acid, and ſlightly aromatic; alſo ſmall Glyſters may be often injected, and if poſſible, retained a long Time.

78. And obſerve, that this Symptom being extreamly dangerous, earneſtly calls for a ſafe and ſpeedy Cure.

Having deſcribed theſe Symptoms, as briefly and methodically as the Nature of this Treatiſe would permit, I ſhall proceed to intermitting Fevers, which I intend alſo to handle with Brevity, omitting the other Symptoms of acute Fevers; ſuch as, a febrile Thirſt, Nauſea, Vomiting, Weakneſs, Heat, Delirium, Coma, Convulſions, Sweats, Diarrhea, Exanthemata, the continued Fever, the putrid continual Fever, and the *Cauſus* or ardent Fever; for which I refer the Reader to *Boerhaave*, *Sydenham*, *Pitcairn*, and other great Phyſicians. If I have Time and Leiſure, I will hereafter treat of theſe Subjects; but among theſe, I ſhall now take particular Notice of the *Cauſus* or burning Fever, on Account of its Frequency, Danger, and Difficulty of Cure.

An ardent Fever.

THE primary Symptoms of this Diſorder are, an Heat almoſt burning to the Touch, unequal in different Parts of the Body, moſt ardent about the vital Parts, but leſs in the extreme Parts, which are ſometimes cold, rendering the Breath extremely hot; a Drineſs of the whole Skin, Noſtrils, Mouth, and Tongue; a denſe, difficult, and quick Reſpiration; a dry, yellow, black, parch'd, rough Tongue; an inſatiable Thirſt, ſometimes ſuddenly removed; a loathing of Food, a Nauſea, and Vomiting; Anxiety, Reſtleſſneſs, and great Wearineſs; a little Cough, a Delirium, Frenzy, obſtinate Watching, Coma, Convulſions, with Exacerbations on the uneven Days.

The Cauſes of a burning Fever may be, exceſſive Labour, the Heat of the Sun, Thirſt long endured, the exceſſive Uſe of heating, fermented, aromatic, acrid Subſtances, and immoderate Wearineſs, eſpecially in Summer, *&c.*

This Fever hath this Progreſs; on the 3*d* and 4*th* Days it often proves mortal; and if it attacks the Patient in its higheſt Degree, rarely exceeds the 7*th* without proving fatal. It is often terminated by an Hæmorrhage, which if it is ſmall on the 3*d* or 4*th* Days is a mortal Sign, which may be predicted by the Pain of the Neck, the Heavineſs of the Temples, a Diſtention of the Præcordia without Pain, a Dimneſs of Sight, an involuntary Diſcharge of Tears without any other mortal Sign, a Redneſs of the Face, an Itching of the Noſtrils; and this Hæmorrhage is moſt ſalutary on the critical Day; on which Day alſo the Fever is terminated by Vomit, Stool, Sweat, Urine, and the Expectoration of a thick Matter: If the Fever increaſes on the * even Days, and before the 6*th* it is a very bad Sign; black and thin Urine, in a ſmall Quantity, is a Token of Death in this Diſeaſe, as is likewiſe bloody Urine; an injured Deglutition is a bad Sign, and a Coldneſs of the extreme Parts is a very bad Symptom; a Redneſs and Sweating of the Face, is alſo a bad Sign; and an Inflammation of the parotid Glands, without Suppuration, is mortal, as is likewiſe a Flux in this Diſeaſe. When attended with a Tremor, it ends in a Delirium, and then in Death. It often changes into a Peripneumony with a Delirium. That Species of burning Fever, which ariſes after violent Pains of the Belly, is of the worſt Kind; it is critically reſolved by a Rigor.

This Diſeaſe is eaſily known by theſe Signs, nor can its proximate Cauſe be miſtaken, for it proceeds from the Blood's being deprived of its milder and more fluid Parts, by an Inflammation through the whole Body, while the Strength of the Patient is vigorous. Hence alſo ſure Prognoſtics may be made, with reſpect to the Termination of this Species of Fevers.

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* The even Days are 2, 4, 6, 8, *&c.*
The uneven Days 1, 3, 5, 7, 9. *&c.*

The Cure of this Fever requires a pure cool Air, frequently renewed; Cloaths that are not ſuffocating, or burthenſome to the Patient; a frequent erect Poſture of Body; large Quantities of mild, demulcent, ſubacid, aqueous and warm Liquors uſed as Drink.

Take of Roots of Spaniſh Scorzonera two Ounces, Tormentill one Ounce, Hartſhorn ſix Drachms, boil them in two Pints and Half of Spring Water to one Pint and Half; to the ſtrained Liquor add Syrup of Lemons three Ounces, make it an Apozem.

Take of Chriſtal Mineral half a Scruple, Conſerve of Hips two Scruples, Oil of Sulphur *per* Campan. two Drops; make it a Bole to be taken every fourth Hour, drinking after it a Draught of the foregoing Apozem.

Further, the Caſe requires light farinaceous Food of Barley, Oats, and ſubacid Fruits; Veneſection in the Beginning of the Diſeaſe, if there is a Plethora, or Signs of particular Inflammation, *&c.* Mild, diluting, and laxative Glyſters are to be often uſed.

If there is an Anxiety, or Signs of a Delirium, *&c.* it is hardly credible what great Effects are produced by Veſicatories; wherefore, in ſuch a Caſe, let ſharp and large Bliſters, Num. 1, 3, or 5. be applied to the Shoulders,

the

the inſide of the Thighs, of the Arms, &c. as the Caſe requires.

For reſolving beginning Coagulations and Stagnations in any Diſeaſe, in Perſons of all Ages, I have never found any Remedy have ſo good and ſpeedy an Effect as Bliſters.

Add to theſe aqueous, mild, nitrous, gratefully acid, and gently laxative Subſtances. e. g.

Take of Barley Water, with Orange Peel boiled in it, one Pint, in which diſſolve Manna two Ounces, more or leſs, according to the Age and Strength of the Patient, Cream of Tartar four Scruples; to the ſtrained Liquor add Oil of Sulphur, or Juice of Lemons, enough to give it a grateful Acidity.

To theſe, if we add what has been ſaid in the general Rules, relating to the Cure of acute Diſeaſes, and their Symptoms, we ſhall clearly underſtand what Remedies are proper for the Cure of any burning Fever.

Intermitting Fevers.

79. FROM the foregoing Obſervations, the great Variety of Fevers does evidently appear: Thoſe that carry on a febrile Motion once excited, with the ſame Impetus from the Beginning to the End, are called continual Fevers. Thoſe that have ſome Remiſſion or Abatement of their Impetus at certain Times,

without an intire Ceſſation of the Fever, are called continual remitting Fevers. Thoſe that at certain Times, have ſuch a Remiſſion of their Impetus, that the Fever entirely ceaſes between the two Paroxyſms, are called intermitting Fevers.

80. The Diagnoſtic Signs of an intermitting Fever are obvious, and its Diſtinction into various Claſſes eaſy, as they depend only on the difference of Time in the Returns of the Paroxyſms.

81. But we ought to know in general, that intermitting Fevers are either Vernal, and prevail chiefly in *February*, and the following Spring Months; or Autumnal, which prevail in *Auguſt*, and continue till the Winter: Which Diſtinctions is neceſſary, on Account of the various Conditions, Symptoms, Terminations, Durations, and Cure of theſe Fevers: Alſo one intermitting Fever removes another.

82. Intermitting Fevers in the beginning of Autumn, often reſemble thoſe of the continual Kind, on Account of their longer and redoubled Paroxſyms; whereas they differ very much in their Nature and Cure.

83. They begin with a Yawning and Stretching, a Wearineſs, Cold, Horror, Rigor, Tremor, and Paleneſs of the Extremities, a difficult Reſpiration, an Anxiety, a Nauſea, a Vomiting, and a weak, quick, and ſmall Pulſe; the more violent and numerous theſe Symptoms are, the worſe the Fever is; and

afterwards the Heat and other Symptoms are the worſe: This is the firſt Stage of intermitting Fevers, which correſponds to the Increaſe, or ſecond Stage of continual Fevers, and is of all the other Stages the moſt dangerous, for then the Urine is generally crude and thin.

84. This Stage of an intermitting Fever, is ſucceeded by another, which begins with Heat, Redneſs, a ſtrong, large, and free Reſpiration, a leſſer Anxiety, a ſtronger and greater Pulſe, an exceſſive Thirſt, a great Pain of the Head and Limbs, this Stage correſponds to the State or Height of continual Fevers.

85. Laſtly, there generally appears a profuſe Sweat, or Remiſſion of all the Symptoms, a thick Urine, with a Sediment reſembling Brick Duſt, Sleep, a total Abſence of the Fever, Laſſitude, and Weakneſs.

86. Intermitting Fevers, going through their three different Stages (83, 84, 85) injure the Fibres of the minute Veſſels and Viſcera, producing Obſtructions, Stagnations, Coagulations, and ſometimes attenuating and diſſolving the Fluids: Hence the Veſſels are weakened, and the Fluids become morbid; eſpecially in that Species of the Diſeaſe, in which their Parts are leſs aſſimulated and not duly mix'd; which Circumſtances united produce an acrimonious State of the Juices; from hence, all theſe Things concurring, ariſes an eaſy Propenſity to Sweat, which very much weakens the Patient, as the viſcid Part of the Blood tranſpires.

In this State the Urine is extremely thick and turbid, pinguious, and like the Saliva. Hence the weak, reſolved, and ſcarce coherent Blood, being deprived of its fineſt Parts, the reſt remains acrid and thick; and ſo in Conſequence of the Laxity of the Veſſels, and the Acrimony of the Fluids, thoſe long continued Fevers ſometimes terminate in Chronical Diſeaſes, as the Scurvy, Dropſy, Jaundice, Leucophlegmatia, ſcirrhous Tumors of the Abdomen, and all their diſmal Conſequences.

87. But if intermitting Fevers are not of the malignant Kind, they diſpoſe the Patient to Longævity, and cleanſe the Body from inveterate Diſorders.

88. Hence, after an accurate Examination of the whole Hiſtory of intermitting Fevers (79 to 88) their proximate Cauſe ſeems to be, a Viſcidity of the arterial Blood upon the Acceſſion of any Cauſe, producing a quicker and ſtronger Contraction of the Heart, and a Reſolution of the ſtagnating Fluids.

89. Since therefore this Order (83, 84, 85) is always obſerv'd in Intermittents, the Phyſician who can conquer the firſt Attack, (83) and the primary Cauſe, (88) may by that Means, remove the whole enſuing Paroxyſm.

90. Beſides, as an infinite Number of Cauſes, and theſe not very conſiderable, may produce the firſt Stage (83) of a perfect intermitting Fever, (79) and its Cauſe: (88) And as many ſuch Cauſes may be produced, increaſed,

and fomented in all the Fluids form'd and ſecreted in the Body, it is more difficult to diſtinguiſh the Cauſe already formed from infinite poſſible Circumſtances, than to invent one Cauſe ſufficient to account for the ſtated Periods of Intermittents, from the Laws of the animal Oeconomy. This is plain to every curious Enquirer.

91. The Cure therefore requires, that we ſhould uſe aperient, ſaline, alcaline, aromatic, mineral, diluting, oleous, and mild Subſtances, with Heat, Motion, Fomentations, and Frictions, during the Intermiſſion, or in the firſt Stage. (83)

92. In order to cleanſe the Primæ Viæ from the redundant Sordes, a Purge or a Vomit is often very beneficial, given either of them ſo long before the Paroxyſm, that the Operation may be over before the Fit comes on. That this is neceſſary may be known from the Patient's Way of Living, preceding Diſeaſes and Symptoms, as a Nauſea, a Vomitting, Eructations, Tumors, the Breath fœtid, the Sordes of the Tongue, Throat, and Palate, and want of Appetite. After the Operation, the Tumult of the Spirits thereby occaſioned, is to be appeaſed by a paregoric Medicine, before the Paroxyſm returns.

93. Theſe are beneficial when, by their Stimulus, they operate both Ways. (92)

94. Otherwiſe they are injurious, (when they weaken and evacuate the moſt fluid Parts of

the Juices, and thereby diſturb the neceſſary Digeſtions, and thus either lengthen the Diſeaſe, or bring on Death. Both the cold and hot Fits are often removed by Sudorifics, whilſt ſome Hours before the known Time of the Paroxyſm, the Patient's Body being filled with an aperient, diluting, and gently narcotic Liquor, a Sweat excited before the Paroxyſm, and continued till two Hours after its uſual Return.

95. Hence alſo Veneſection is always hurtful in itſelf, though it may prove accidentally beneficial; as alſo is a light and exactly regulated Diet.

96. When this Fever is in the ſecond Stage, (84) aqueous Liquors, mix'd with warm ſubacid, aperient, and nitrous Ingredients are neceſſary, and the Patient is to be kept quiet and moderately warm.

97. When the Paroxyſm is reſolved by a Criſis, then it is proper to uſe vinous Ptiſans, Broths of Fleſh, and temperate Decoctions, to ſupply the Matter of Sweat and Urine: Thus theſe Excretions are to be excited, not by the Force of Heat, Medicines, or Bed Cloaths; but gently promoted by an increaſed Quantity of theſe Subſtances long perſiſted in.

98. Violent Symptoms are to be removed by the Rules preſcribed for the Cure of acute Fevers. The vital Powers are beſt ſupported by a juſt Medium in all Things.

99. When the Fever is removed, the Patient is to be reſtored by ſtrengthening Diet and Medicines, and when able to bear it, he is to be purged ſeveral Times.

100. But if an Autumnal intermittent Fever is very violent; if the Patient is weaken'd by the Diſeaſe; if the Diſeaſe has continued ſome Time, and there are no Signs of an internal Inflammation, nor of Pus collected any where, nor of a conſiderable Obſtruction of any of the Viſcera, the Diſeaſe is to be removed by the Peruvian Bark, given in the Form of Powder, Infuſion, Extract, Decoction, or Syrup, with proper Specifics during the Intermiſſion, in a due Order, and proper Doſes, joined with a due Regimen.

101. That the Cure of particular Intermittents may be underſtood, obſerve,

Firſt, That the ſhorter the Intervals of true Intermittents are, the ſooner they are cured; and the longer the Intervals are, the more Time is required for their Cure.

Secondly, For the ſame Reaſon they approach nearer the Nature of acute Fevers, and are ſometimes changed into them.

Thirdly, Perhaps for this Reaſon, their Cauſe is more moveable the more copious.

Fourthly, Hence Vernal Intermittents, upon the Approach of warm Weather, are ſpontaneouſly terminated.

Fifthly, Autumnal Intermittents, on the Approach of cold Weather, are increaſed.

Hence it is obvious what Fevers are curable, and by what Medicines.

Having thus ſtudiouſly finiſhed and compared together, the *Principles of Phyſick*, with the *Appendix*, who can view this Art without Admiration! For to this ART is owing the Preſervation of Health, and conſequently of the Vigour of the Mind, the nobleſt Part of Man, by which great and worthy Actions are performed. For where is there ſo powerful a Teacher of an abſtemious and ſober Life, as Phyſick? Or, what can more ſtrongly excite us, to moderate our Anger, to baniſh Sadneſs, and to avoid all Exceſs in indulging the ſenſual Appetites, than this noble Faculty.

You have made a good Uſe of our *Principles of Phyſick*, and I congratulate you upon the happy Succeſs of your Studies.

For the further Inſtruction of the young Practioner, it has been thought neceſſary to ſubjoin the Method of treating ſome Diſeaſes, which Dr. Groenvelt *has not taken Notice of, according to the preſent Rules of Practice of the moſt eminent Phyſicians; particularly noting thoſe Things, which have been found moſt ſerviceable in each Diſtemper treated of, from repeated Experience.*

Of the Small Pox.

THE Origin of this Diſeaſe is uncertain, we find no mention of it before the *Arabian* Phyſicians: Moſt Authors divide it into the diſtinct and confluent Sorts; but, in my Opinion, it more accurately, and agreeably to the Nature of the Diſeaſe, may be divided into Simple and Malignant. The ſimple or diſtinct Sort begins with Shivering, intenſe Heat, a violent Pain of the Head and Back, an Inclination to vomit. In Adults, a great Propenſity to ſweat, a ſure Sign the Pox will not run together, a Pain in the Stomach when preſſed with the Hand, a Dullneſs and Drowſineſs, and ſometimes Epileptic Fits, particularly in Children: If the Fit happens over Night the Small Pox will certainly appear in the Morning, and are, generally ſpeaking, of the favourable Sort.

On the fourth Day from the Beginning they break out, ſometimes later, ſeldom before; all which Time the Symptoms either abate or wholly diſappear.

The Spots at firſt are reddiſh, feel hard within the Skin, and ſpread themſelves over the Face, Neck, Breaſt, and the whole Body. There is great Pain in the Fauces, which increaſes as the Puſtules grow turgid.

On the eighth Day the Spaces between the Puſtules, which were hitherto white, begin to grow red and ſwell; the Eye-lids are puffed up, and the Eyes cloſed: Next to the Face, the Hands begin to ſwell, and the Fingers are diſtended; the Puſtules of the Face, before ſmooth, begin now to grow rough (the firſt Sign of Maturation) and throw out a yellowiſh Matter, in Colour like a Honeycomb. The Puſtules about the Face as they ripen, grow more rough and yellow; but on the Hands they grow whiter and leſs rough. On the eleventh Day the ſwelling of the Face, and Inflammation diſappear, the Puſtules being now ripe, grow dry and fall off. On the fourteenth or fifteenth Day they periſh intirely, except ſome obſtinate Puſtules on the Hands which continue longer, and ſometimes break. Through the whole Courſe of this Diſeaſe, the Patient's Body is either wholly bound up, or he goes to Stool but very ſeldom. Generally thoſe who die of this Kind of Small Pox, die on the eighth Day: Then the Face, which ought to be turgid, and the Interſtices florid, on the contrary is flaccid and whitiſh; and if a Sweat has been injudiciouſly promoted by Cordials, and a hot Regimen, the Patient is ſeized with a Phrenzy, a violent Anxiety, and Sickneſs; he makes Water often and little, and a few Hours cloſe the tragical Scene.

The malignant or confluent Sort, is that in which the Eruption appears with a malignant Fever. The Sickneſs, Anxiety, Vomiting, *&c.* more cruelly torment the Patient, yet he does not ſo ſoon fall into a Sweat as in the diſtinct Kind. In Adults a Salivation, and in Children a Diarrhea, is moſt frequently a Sign of the confluent Sort. On the third Day, ſometimes before, ſeldom later, the Spots appear, and the ſooner, the more they will run together. Sometimes the Eruption is retarded till the fourth or fifth Day by ſome terrible Symptom, ſuch as, a moſt acute Pain in the Loins, like the Gravel; in the Side, like a Pleuriſy; in the Joints like the Rheumatiſm; in the Stomach, with violent Sickneſs and Vomiting. Theſe Symptoms do not remit after the Eruption, as in the ſimple Sort, but the Fever, and other Complaints, continue to moleſt the Patient many Days after. Sometimes the Spots appear like an Eryſipelas, ſometimes like the Meaſles, but are diſtinguiſhed from them by the Time of the Eruption. As the Diſeaſe increaſes they do not riſe to any conſiderable Height, but intangling with each other in the Face appear like a red Bliſter, and cover all the Countenance, which ſwells ſooner than in the diſtinct Kind: Afterwards they ſeem not unlike a white Pellicle glued to the Face, and are not much higher than its Surface.

The eighth Day being paſt, the white Pellicle grows daily more rough, and of a duſky Colour; the Pain of the Skin becomes more intenſe, and in the more cruel Kind of this Diſeaſe, they do not fall off till after the twentieth Day. It is worthy of Obſervation, that the more the ripening Puſtules are of a browniſh Colour, they are the worſe, and the longer falling off; and the more Yellow they are, the leſs they run together, and the ſooner they diſappear.

The Danger of the Diſeaſe is to be eſtimated, from the Number and Magnitude of the Puſtules on the Face alone. The Puſtules of the Hands and Feet are greateſt; and the farther they are removed from the Extremities, the leſs they are. A Spitting ſometimes begins with the Eruption, ſometimes two or three Days after it; it is at firſt thin, but on the eleventh Day it grows more viſcid, and is hawk'd up with Difficulty; the Patient is thirſty, and hoarſe, extremely ſleepy, and his Senſes exceeding dull; he frequently coughs as he is drinking, and the Liquor regurgitates through his Noſtrils: At this Time the Salivation generally ceaſes, but the Swelling of the Face ought not to go down till a Day or two after, when the Spitting is over; if the Hands do not begin to ſwell remarkably, and continue ſo for ſome Time, the Patient will ſuddenly leave the World. A bad Regimen produces many irregular Symptoms, ſuch as a ſubſiding of the Puſtules, a Phrenzy, a Coma, purple Spots intermixed with the Puſtules, and ſmall black Spots on the Top of the Pox, ſubſiding in the middle, bloody Urine, &c. theſe are almoſt always fatal Signs. The Day on which the Patient is in moſt Danger, in the leaſt crude and moſt common Sort of the Confluent, is the Eleventh from the firſt Attack of the Diſeaſe; in the more crude the Fourteenth; and in the moſt crude the Seventeenth; ſometimes, but ſeldom, the Patient does not die till the Twenty-firſt: But in the Space of Time from the Eleventh to the Seventeenth, as the Evening comes on, the Patient is daily tormented with Fits of great Inquietude.

In the Management of the Patient in the ſimple or diſtinct Sort, Regard ſhould be had to the Seaſon of the Year, and the Strength of the Patient. 'Tis abſolutely neceſſary to keep the Patient in Bed during the firſt Days of the Diſtemper, taking Care to defend him from the Inclemency of the Winter, by proper Means; and to moderate the exceſſive Heat in Summer by cool Air; for the Patient ought not to be ſtifled by Heat and Cloaths, nor ſhould the Eruption and Perſpiration be checked by Cold. However there ought to be a proper Supply of pure and cool Air; becauſe a hot Air cauſes Difficulty of Breathing, checks the Secretion of Urine, and increaſes the Number of Puſtules on the internal Organs of the Body; the Conſequence whereof, we may juſtly apprehend to be Inflammations and Gangrenes. The Diet ought to be ſlender, moiſtening, and cooling, ſuch as Oatmeal, or Barley Gruel; and in the Beginning, the beſt Regimen is that which keeps the Body open, and promotes Urine; for Dr. *Mead* ſays, the keeping the Body open in the Beginning, is a moſt important Advice, if the making of Urine alſo be promoted, ſo as to diſcharge it plentifully. This End is obtained by boiling preſerved Fruits with their Food, ſuch as Figs, Damaſcenes, Plumbs, and Tamarinds, by giving them ſubacid Liquors for Drink, as Small Beer, acidulated with Orange, or Lemon Juice, Apples boiled in Milk and turned to Whey, Emulſions made with Barley Water and Almonds, Moſelle, or Rheniſh Wines moſt plentifully diluted with Water, &c.

In the Cure, *Sydenham* directs Bleeding on any of the three firſt Days, to nine or ten Ounces, and then preſcribes an Emetic. *Hoffman*, judges it to be proper on the firſt Day of the Invaſion, and preſcribes two Grains of emetic Tartar in Cinnamon Water to Adults. Dr. *Mead* likewiſe in the firſt Place, adviſes Bleeding, even to Children, and affirms, that when they are ſeized with Convulſions at the Onſet of this Diſeaſe, ſome Evacuations ought to be made, which may be done ſafely by Leeches applied to the Temples, or behind the Ears. Likewiſe, if Blood cannot be drawn from the Arm, in moſt young Subjects, either of the Jugulars may be opened without any Inconvenience. That Regard is to be had to the Patient's Strength muſt be allow'd, but the Weakneſs is ſeldom ſo great as not to allow ſome Loſs of Blood. In Youths, and Adults, it is often neceſſary to take away Blood two or three Times, only with an Intermiſſion of two or three Days between each Time. And it is certain when the Pulſe is low, ariſing from a Thickneſs of the Blood, and the vital Fluid is not repelled from the Heart with due Force, by removing the Oppreſſion, the Patient's Strength is obſerved even to increaſe with the Bleeding; and it is found to be ſo far from being an Obſtacle to the Eruption of the Puſtules, that it forwards it conſiderably. When the vaſt Number of ſmall Puſtules forebode a Diſeaſe of the worſt Kind, the Face of Affairs has been ſo remarkably changed upon one or two Bleedings, rhat the Puſtules increaſed in Size, and diminiſhed in Number. It likewiſe prevents Delirium, Convulſions, Difficulty of Breathing, and the like. Bleeding may be uſed at all Times when the Violence of the Fever requires it, and the Patient's Strength is able to bear it. A Phrenzy coming on the fourth Day of the Eruption, has been juſtly eſteemed a fatal Omen; yet many have been ſaved by drawing Blood immediately, and then throwing in a Glyſter. When the Stomach abounds with Phlegm, or Bile, or is loaded with Food unſeaſonably taken in, a Vomit is neceſſary; otherwiſe a Purge may be preſcribed before the Eruption of the Puſtules: This may be the Infuſion of Senna with Manna, or Manna alone; eſpecially for Children, for no Diſturbance is to be raiſed in the Body.

To keep the Inflammation of the Blood within due Bounds, and aſſiſt the Expulſion of the morbific Matter through the Skin.

Take Pulv. Contrayerva Comp. half an Ounce, Nitri Purific. two Drachms, m. f. Pulver. Num. viii. terve quaterve in die ſumend.

This may be increaſed or diminiſhed according to the Symptoms, diminiſhing the Quantity for Children in Proportion to their Age.

Sometimes equal Quantities of theſe may be preſcribed; and if the Efferveſcence of the Fever runs very high, a proper Quantity of the Spirit of Vitriol may be added to the Patient's Drink: But if there be any Keckings or Reachings to vomit, they will be removed by the following:

Take Succ. Limon. one Ounce, Sal. Abſynth. one Scruple, Aqua Cinn. Ten. one Ounce. Sacch. Cand. one Drachm, m. f. Hauſtus ad libitum.

When the Eruption of the Puſtules is compleated, which generally happens on the fifth Day from the Attack, let the Patient take an Ounce of Diacodion every Evening till the tenth Day after the Invaſion. But Dr. *Mead* ſays, theſe Medicines are not to be uſed over haſtily; for all Anodynes in ſome Meaſure, obſtruct the Seperation of the morbifick Matter from the Blood, unleſs the Pain happens to be exceſſive; wherefore it is not proper to employ them till the Eruption of the Puſtules is compleated, and then they may be adminiſtered with Safety. Theſe Medicines agree not ſo well with Infants, but Adults may take a Doſe of Thebaic Tincture, eighteen Drops for an Ounce of Diacodion, and twenty-five Drops for an Ounce and Half; and this may be repeated Evening and Morning in Caſe of great Inquietude: But if towards the End of the Diſeaſe, the Patient happens to be ſeized with a Shortneſs of Breath, or Danger of Choaking from viſcid Slime, theſe Medicines are intirely to be prohibited; rather, if the Patient be coſtive, and the Fever continues, which is generally the Caſe, the Body is to be opened with a gentle ſtimulating Glyſter, every, or every other Day.

If this Method is proper in the ſimple diſtinct Small Pox, how much more will it be found neceſſary in the malignant confluent Sort, which is attended with greater Fear and Danger.

The Malignity appearing in various Forms, has given various Appellations to this Kind of Small Pox, the chief of which are theſe that follow, the Chryſtalline, the Warty, and the Bloody.

In the Chryſtalline Sort of the malignant Small Pox, the Water of the Puſtules can never be brought to a laudable Suppuration; therefore while the thinner Parts are made to tranſpire through the Skin, the groſſer ought to be drawn off through the Urinary Paſſages, by diuretic Medicines, To this Purpoſe Nitre may be adminiſtered three or four Times a Day, from a Scruple to half a Drachm, in ſmall Wine, which is the only Sort at this Time proper, till near the End, when the Patient may be allowed a little Canary, or any other ſoft generous Wine to ſupport his Strength. While Nitre is thus taken it will be proper to interpoſe Medicines which cheriſh the Heart, and promote the Flux of the Humours into the Puſtules; ſuch as *Raleigh*'s Confection, the Cordial Confection, the Bezoardick Powder with Saffron; as alſo the following,

Take e Chel. 69, C. one Scruple, Sperma Cæti fifteen Grains, Caſtor. R. Sal. Succin. Croci Anglicani ana four Grains, Confect. Alkerm. q. ſ. m. f. Bolus ſexta vel octava quaq. hora ſumend. in quovis Vehiculo.

Take Rad. Serpent. Virg. twelve Grains, Contrayerv. ſix Grains, Croci Angl. Caſtor. Ruſſ. ana five Grains, Syr. Caryoph. q. ſ. m. f. Bolus urgente Symptomate ſuperbibend. Hauſtulu ſequente.

Take Spirit of Vitriol five, ſix, or eight Drops in a Draught of Moſelle Wine.

Take Rad. Valerian. Sylv. ſubtiliſs. Pulv. half a Drachm, Sal Vol. C. C. Camphor ana five Grains, m. f. Pulvis cum hauſtul. ex aqua Alexet. S.

Beſides theſe, on the fifth or ſixth Day of the Eruption, Bliſters are to be applied between the Shoulders, and to the Arms and Legs. By thus diſcharging the Seroſities, the Fever which increaſes when there is no further Derivation of Humours to the Skin, is ſeaſonably prevented.

But this is a general Rule, ſays Dr. *Mead*, that whatever acute Diſeaſes comes upon the Small Pox, it muſt be treated with its own peculiar Medicines: As, for Inſtance, the Bark, which has good Effects in mitigating the ſecondary Fever; and *Monro* tells us, that the Peruvian Bark fills the empty Veſicles with Matter, and changes the watery Sanies into thick white Pus. The Doſe in Powder is from ten to forty Grains in ſome Cordial Julep, to be taken every four or five Hours: Children may take it in a Glyſter with warm Milk; the Bowels being firſt unloaded. If the Glyſter is retained too ſhort a Time, Syrup of Poppies, or Diaſcordium may be added; but when the Lungs are greatly ſtuffed it is not to be given.

If the Spittle through Heat, is ſo tough that it cannot be hawked up, let a Gargle be frequently injected into the Throat with a Syringe. The following may be preſcribed,

Take Cort. Ulmi. ſix Drachms, Rad. Liquor. half an Ounce, Paſſul. enucliat. Num. xx. Fol. Roſar. rub. pug. ii. Coq. in Aqua Fontan. q. ſ. ad one Pound and Half in colatura adde Oxym. Simpl. Mel. Roſar. ana two Ounces, m. f. Gargariſma.

Take Decoct. Pector. one Pound and Half, Syr. Mororum two Ounces, m. f. Gargariſma. Utatur Æger pro Gargariſma et Potu etiam ordinario.

Cataplaſms of Horſe Radiſh, Muſtard Seed bruiſed, with a ſufficient Quantity of Honey, may be applied to the Throat; and in caſe of Extremity, Gargles with Muſtard Seed and Pepper, with the Addition of Oxymel, may be added.

In every Sort of this Diſeaſe it is proper to open the Body on the Decline; that is, on the ninth or tenth Day from the Eruption, becauſe a putrid Fever generally comes on about that Time, while the Puſtules are drying, (*Sydenham* mentions this Fever as coming on the eleventh, or later, but this is to be underſtood from the Time of the Invaſion) or upon the Subſidence of the Swelling of the inflamed Skin, where there is no Suppuration; which Fever cannot be taken off with equal Safety by any other Means; but gentle Catharticks alone are to be employed in this Caſe, ſuch as were directed before the Eruption of the Puſtules; or thus,

Take Mannæ opt. one Ounce, ſolve in Aqua, Alexet. S. three Ounces, adde Elect. Lenitiv. three Drachms, Aqua Alexet. Spt. one Ounce and Half, m. f. Potio.

If the Patient's Body happens to be looſe, this Remedy becomes leſs neceſſary, or may be poſtponed for ſome Days: Alſo when there is any purulent Matter lurking under the withered Skin of the Puſtules, the Body is not to be purged, but rather to be ſupported by proper Medicines and Diet, till the Matter is all come away; this has run ſometimes to the twenty-fourth Day of the Diſeaſe, and yet the Patient recovered.

Dr. *Mead* declares alſo, at this Time it will be proper to take away ſome Blood, if the Heat be too great, and the Patient has Strength to bear it.

If there happens an intire Suppreſſion of Urine, Glauber's Salts are particularly uſeful, as they are both laxative and diuretic: The Doſe from half an Ounce to an Ounce diſſolved in any aqueous Vehicle.

The warty Small Pox is more dangerous than the Chryſtalline; (tho' theſe are peculiar to the diſtinct Sort) becauſe they contain no Fluid, but grow hard and prominent above the Skin like Warts; wherefore the Matter of the Diſeaſe being too thick, can neither ſuppurate nor paſs off by Urine: Wherefore, it is neceſſary to uſe the utmoſt Endeavours to take off the Fever, and to promote Sweating, in order to digeſt the morbid Humours, by the cordial Medicines abovementioned. Bliſters ought to be applied in this Caſe likewiſe. But the *Arabian* Phyſicians pronounced this Sort of the Diſeaſe to be always fatal.

The bloody Small Pox requires peculiar Attention. Now in this Sort, if there is any Room for Phyſick, thoſe Medicines bid faireſt for Succeſs, which by their Stypticity, in ſome Meaſure thicken the Blood, and ſo check it, that it cannot break through even the minuteſt Arteries: Such are the

Peruvian Bark, Oil of Vitriol, Alum, and Dragons Blood. They are beſt uſed alternately in this Manner; a Drachm of the Bark may be given every ſixth Hour, and three Hours after the following, which will prove a very powerful Medicine if thus compounded; mix three Parts of Allum in an Iron Ladle over a gentle Fire, with one Part of Dragons Blood, when the Maſs is grown cold reduce it to a Powder; a Scruple of which made into a Bole with Conſerve of Roſes, will be a proper Doſe. The moſt convenient Manner of giving the Oil of Vitriol, is in the Tincture of Roſes; of which Tincture five or ſix Spoonfuls may be taken ſeveral Times in a Day, and the Patient's common Drink may be acidulated with it, eſpecially if black or purple Spots appear among the Puſtules: And this Medicine will be of Service, not only in the Bloody, but in all other Sorts likewiſe accompanied with theſe Spots. Bliſters in this Caſe are ſafe enough, when a Delirium requires their Application.

Hoffman affirms, that Hæmorrhages in the Small Pox are better relieved by Butter Milk, and Whey, than any other Medicine whatſoever.

From the eighth Day to the End of the Diſeaſe, Garlick may be applied to the Soles of the Feet, which muſt be renewed every Day if the Brain be affected.

Twenty-one Days after the Invaſion let a Vein be opened in the Arm, and the next Day give a Cathartick, which may be repeated every other Day three Times more.

This is neceſſary, becauſe no Species of the eruptive Fever, the Meaſles excepted, requires the Body to be thoroughly cleanſed of the Remains of the Diſeaſe more than this. After the Cathartick, the

Body is to be reſtored to its former State by a Courſe of Milk, eſpecially that of Aſſes, with ſuitable Food, and the Air and Amuſements of the Country.

When the Puſtules are perfectly dry and withered, the following elegant Preſcription to take off the Marks left by the Small Pox, may be applied to the Face.

Take Ol. Amygd. D. one Ounce and Half, Cer. Alb. Sperma Cæti ana one Drachm, Balſam Gileadens. two Scruples. m. ſ. Art. et. f. Linimentum.

Corroſive Ulcers are beſt cured with Spirit of Vitriol, and a ſufficient Quantity of Honey of Roſes, which is a Remedy of great Efficacy.

As there are Accidents in the Small Pox which do not commonly occur, it will be proper to ſay ſomething of them. Sometimes the Patient is ſeized with Convulſions, juſt before the Eruption; which is rather a good than a bad Sign in Children. In this Caſe Bleeding is to be avoided, and a Bliſter applied to the Neck; to the Soles of the Feet Plaiſters of equal Parts of the Cephalick and Epiſpaſtick Plaiſter, not forgetting Antispaſmodick Medicines inwardly; the chief of which are Ruſſian Caſtor, wild Valerian, and volatile Salts, chemically extracted from Animals.

In Adults the Caſe is otherwiſe; for they, if not too weak, may loſe a moderate Quantity of Blood, and then be put into the foregoing Method.

When ever a Woman with Child is ſeized with the Small Pox, there is great Reaſon to fear a Miſcarriage, which is dangerous from the new Fever which attends that Accident, and from the Loſs of Blood, which may bring her very low; and the nearer ſhe is to her Time, the greater is the Riſque ſhe runs. Yet there have been Inſtances both of

Mother and Child doing well. A great deal depends on the Time of the Diſeaſe when the Abortion happens; becauſe, the more nearly it coincides with the Time of the ripening of the Puſtules, the more Danger it occaſions; wherefore if the Flux be more than Nature uſually requires, the Medicines propoſed in the bloody Small Pox are to be given.

Women's Monthly Evacuations coinciding with the Small Pox, whether they happen at the uſual Time, or are brought on irregularly by the extraordinary Effervеſcence of the Blood, in both Caſes rather afford Relief than Danger. But if the Diſcharge ſhould be ſo great as to weaken the Patient over-much, the Medicines recommended in the bloody Small Pox will be beneficial, not omitting to bleed if requiſite.

Likewiſe Bleeding at the Noſe in the Beginning of the Diſtemper, by diminiſhing the Heat, is rather ſerviceable than detrimental, if not too exceſſive.

Why the Small Pox ſcarce ever viſits a Perſon above once, is a famous Problem, long canvaſſed, and with little Succeſs. Dr. *Drake* accounts for it very plauſibly, from the Alteration made in the Skin by that Diſeaſe; for the Diſtention the Glands and Pores of the Skin ſuffer therein is ſo great, that they ſcarce ever recover their Tone again, ſo as to be able any more to confine the Matter in its Courſe outwards long enough, or in Quantity ſufficient to create thoſe puſtulous Eruptions, which are the Diagnoſtics of the Diſeaſe. For tho' the ſame feveriſh Diſpoſition ſhould ariſe again in the Blood, yet the Paſſages through the Skin being more open, the Matter will never be ſtopped, ſo as to exhibit the Appearance of the Small Pox. Accordingly we find, that in Perſons ſeverely handled with this Diſeaſe, the Face, which is uſually the fulleſt, from the extraordinary Obſtruction the Matter meets with, by the great Conſtipation of the Pores during the Diſorder, ſeldom returns to its former Dimenſions: Which Enlargement he accounts for, from the Dilatation of the Areolæ of the Glands and Pores of the Skin, not from any Augmentation of the Subſtance itſelf. What confirms this Hypotheſis is, that Nurſes, &c. who attend Perſons ſick of the Small Pox, are frequently a little affected by it, and have now and then two or three Eruptions; that they have no more, ſeems to follow from the free Courſe of the Matter through the Skin: With this too, agrees that conſtant Obſervation, *That People of coarſe Skins, in whom the Pores are largeſt, are always more favourably treated by this Diſtemper, than others; and that it conſtantly leaves fine Skins coarſer than it found them.*

This Solution would ſeem more probable, were it not that ſome have ſo very few of theſe Eruptions, perhaps not above twenty or thirty, which cannot be fairly allowed, ſo far to enlarge the Pores of the Skin, as to prevent any Return.

Others hold, that in a genuine Eruption, the Cauſe of the Diſtemper is ſo far evacuated, as ſcarce to leave a Probability of a Return; and that, if Part of the original Cauſe did remain behind, it might, when the Air favours it, or when by other Accidents it is ſecreted from the Blood, appear in the Form of Eruptions, and ſo prove to be the Meaſles, Chicken Pox, &c.

It may indeed be objected, that theſe laſt mentioned often happen before the Small Pox; but whatever be the Cauſe of the Small Pox, the ſeparating Power muſt be in ſuch a determined Proportion, or it will fail to cauſe a regular Small Pox, and ſo acting proportionably, may produce any of the other Diſtempers juſt mentioned.

The Chicken, and Swine Pox, ſeem to be the Small Pox in a leſs Degree, tho' they ſometimes precede, and ſometimes ſucceed it. The Puſtules appear to be of the ſame Kind; only in the Swine Pox they are much larger, and in the Chicken Pox ſomewhat leſs than in the Small Pox. There commonly appear five or ſix, ſometimes twenty or thirty on the Face, and but very few on the Body. The Patient is very little indiſpoſed, either before, at, or after their Appearance; tho' the ſudden ſinking of them often cauſes ſome Diſorder, but it is quickly relieved by a little Sack and Saffron, or a Doſe of Treacle Water. Grown Perſons ſeldom keep within Doors for either; and upon that Account the Eruptions may continue the longer, becauſe the cold Air is ſuppoſed to hinder their ripening, ſo that it is three Weeks or a Month before they totally diſappear.

Of the Scurvy.

THIS Diſtemper, the moſt violent of all Chronical Diſorders, chiefly affects the Inhabitants of cold Northern Countries, where it has always been common, and the nearer to the Sea the more ſevere it proves. The *Danes*, *Norwegians*, and other Inhabitants on the Coaſt of the *Baltic*, are vaſtly afflicted with it; nor do the *Germans*, *Dutch*, or our own Countrymeneſcape its Fury. Thoſe who live idle ſedentary Lives, eſpecially thoſe who live in moiſt, low, and marſhy Places; as alſo thoſe who feed on dryed, ſmoaked, and ſalted Fiſh, or Fleſh, unfermented Vegetables, &c. are moſt ſubject to the Attacks of this Diſeaſe: Likewiſe thoſe who are inclined to hyſteric, melancholic, or hypochondriac Diſorders; as alſo thoſe who have taken large Quantities of the Peruvian Bark, without proper Evacuations, are frequently afflicted with it. Beſides theſe, Phyſicians many Times attribute the Diſeaſe to bad Air, and unwholeſome Waters; and the eating large Quantities of Pulſe, as Peas, Beans, &c. which furniſh the Body with groſs and improper Nutriment. This is particularly manifeſted to us in that remarkable Account of Lord *Anſon*'s Expedition to the *South Seas*, in which he loſt a third Part of his Men by this cruel Diſorder; and the Calamity roſe to ſuch a Pitch, that the Callus of broken Bones, which had been compleatly formed for a long Time, was found diſſolved, and the Fracture appeared as if it had never been conſolidated. This ſhews us what a high Degree of Corruption and Putrefaction, the Juices of the Body are ſubject to from foul Air and improper Food; and this is evident from the Appearance of the Blood, which, when drawn, has nothing of its natural red Colour, but reſembles a dark muddy Puddle, and this will enable us to account for thoſe fatal Hæmorrhages and obſtinate Obſtructions, which accompany, and are the Conſequence of this deplorable Diſeaſe; which when thoroughly fix'd, *Charleton* tells us, can only be palliated, and is ſeldom to be cured, it being almoſt impoſſible to bring the Blood, when wholly corrupted, to its natural State. How neceſſary then it is to attack this many headed Hydra in its Infancy, to explore its Cauſes, and prevent its diſmal Effects moſt clearly appears; and this will be beſt effected, by explaining to our Pupil the many various Forms and Appearances it ſo frequently puts on; and by what Symptoms it may be beſt known to be exiſting in the Body.

Medicinal Writers have given ſuch various and inconſiſtent Accounts of this Malady, that it is no eaſy Taſk to determine by what Symptoms it is beſt known; but the following the Pupil can never be deceived in; as univerſal Wearineſs, Heavineſs of the Body, Difficulty of Breathing, ſtinking Breath, Rottenneſs of the Gums, Bleedings at the Noſe, Swelling of the Legs, which are always livid, yellow, or full of Violet colour'd Spots; the Colour of the Face being in general of a pale Tawny: The Patient when he wakes in a Morning, finds himſelf as if tired, and bruiſed in all his Joints and Muſcles, declines all Manner of Exerciſe, and loves to be in a ſitting, or lying Poſture. In the ſecond Stage, the Gums grow painful and ſwell, bleeding upon the leaſt Preſſure; Pains are frequently found in the Head, Breaſt, Belly, Legs, and in all the external and internal Parts of the Body, imitating Diſtempers peculiar to theſe Parts. In the Third Stage the Gums, which were before inflamed, grow putrid, and a Gangrene enſues; the looſe Teeth grow yellow, black, and rotten, and the ſublingual Glands become varicous; fatal Hæmorrhages often break out, without any Appearance of a Wound, from the Lips, Noſe, Mouth, Lungs, Liver, Spleen, &c. Obſtinate Ulcers ariſe, eſpecially in the Legs, attended with a cadaverous Smell, which are apt to gangrene, and which no Applications will cure. There are excruciating Pains felt in the Joints, Bones, and Viſcera, which are more violent in the Night than at any other Time. This, in the fourth Stage, cauſes Fevers of various Kinds, which bring on Diarrhæas, Dyſenteries, Dropſy, Conſumption, Putrefaction of the Liver, Spleen, Meſentery, mortal Faintings, and Anxieties, and at laſt Death itſelf.

By this it appears the Blood is faulty in its Texture, being either too thick or too thin, or too much impregnated with a muriatic, alcaline, or acid Acrimony; to diſcover which requires the utmoſt Attention, and moſt accurate Inquiry. It is to be laid down as a general Rule in the Cure of this Diſeaſe, that it is to be treated with the moſt mild and ſimple Medicines; that which is thick is to be attenuated, that which is ſtagnant to be rendered moveable, and that which is coagulated to be made fluid: To anſwer this Intention, nothing more conduces than pure, light, and ſimple Waters, the genuine Diſſolvent of all Salts; and there is not a more univerſal Remedy for the Scurvy, in the moſt obſtinate and confirmed Caſes, than the Mineral Waters now ſo much in Vogue; which will be ſtill more certain if an accurate Regimen be obſerved, and the Waters aſſiſted by a repeated Exhibition of proper antiſcorbutic and balſamic Medicines; than which nothing is more effectual in correcting a ſcorbutic Acrimony. A Milk Diet, or Whey impregnated with the Juices of Scurvy Graſs, Water Creſſes, &c. is moſt excellent; for Scurvy Graſs, and all the Species of Garden and Water Creſſes, which are juſtly eſteemed Antiſcorbutic, induce a ſurpriſing Alteration in the diſordered Solids and Fluids. To theſe may be added Lime Water, with Saſſafraſs, Guaicum, Tops of Fir or Pine Trees, Juniper Berries, &c. Decoctions being made of them, and their Uſe continued for a long Seaſon.

But it is here moſt earneſtly recommended, and carefully to be obſerved by the young Practitioner, that when the Pulſe is great and hard, the cooling Antiſcorbuticks, with gentle Evacuations and Bleeding, take Place. But when the Pulſe is weak, ſmall, and unequal, it requires hot Antiſcorbutics to raiſe the Pulſe, and evacuate the Serum.

In the firſt Caſe, unleſs there be Suſpicion of a Dropſy, take away eight Ounces of Blood, and the next Morning give the common purging Potion, which ſhould be repeated for three Times, every third Day, keeping an exact Method of Diet on the intermediate Days, which is equal to Medicine, and which being neglected, the Scurvy becomes incurable. The Days on which Purging is omitted preſcribe as follows.

Take Conſerv. Aurant.---Lujulæ ana one Ounce, Pulv. Ari C. ſix Drachms, Sal. Diuretic. one Drachm and Half, Syr. Aurant. q. ſ. ut f. Electarium cujus ſumat quant. nuc. moſch. maj. matutina, quinta pomeridiana, et hora ſomni ſuperbibendo Cochl. ſex ſucc. Scorbutic, ſequent.

Take Succ. Cochl. Hortens. one Pound, Becabungæ, Naſturtii Aquatici, ana half a Pound, Aurantiorum Hiſpalenſium ten Ounces, miſce et poſtquam fæces ſubſederint, effunde et cola.

This is to be given the intermediate Days of Purging; and to be continued for three Months after. In the weak, low, and depreſſed Pulſe, Chalybeats, Bitters, and Stomachics, joined with Diuretics are neceſſary, as Pillulæ, Ecphraticæ, Tinctur. Cantharid. Vin. Amar. &c. or preſcribe as follows.

Take Conſerv. Abſynth. Maritim. one Ounce and Half, Antimon. Crud. Pulv. half an Ounce, Chalyb. cum ſulph. Pptæ three Drachms, Spec. Aromatic. Cort. Winter. ana one Drachm and half, Syr. Aurant, q. ſ. ut f. Electarium de quo capiat q. nuc moſch. ter in die ſumend. ſuperbibendo Cochl. iv. Expreſs. ſequent.

Take Milleped. Viv. four Ounces, Sacch. Cand. two Ounces, Vini Alb. one Pint, contunde in mortario et cola pro Uſu.

In this Species of Scurvy, if the Gums are affected uſe the following.

Take Spt. Vin. C. half an Ounce, Tinctur. Myrrh. S. one Ounce, Rob. Juniper. half an Ounce, Aqua Abſynth. four Ounces, Sal. Gemm. one Drachm, m. f. Gargariſma ſæpe utend.

In hot Scurvies the following.

Take Spt. Sal. marin. two Drachms, Aquæ Stillatitiæ Salv. eight Ounces, m. f. Gargariſma.

In Hæmorrhages, which are not uncommon in this Diſeaſe, Dr. *Mead* recommends Mynſicht's Elixir of Vitriol, taken in cold Water at proper Intervals; and ſometimes the Styptic Tincture taken in the ſame Manner.

In the alkaline and muriatic Scurvy, which is diſtinguiſhed by the uncommon Fluidity and Thinneſs of the Blood, and is generally found in old Sailors, and thoſe who live on ſmoaked or dryed Fiſh and Fleſh; Whey drank long and copiouſly, produces happy Effects: The Juices of Oranges, Citrons, and all ripe Fruits, greatly contribute to forward the Cure.

Pains of the Breaſt and Abdomen are not to be treated with hot Medicines; Chicken Broth, Oil of Sweet Almonds and Sperma Cæti have a good Effect; particularly when ſmall Doſes of Opiates, corrected by gentle Purgatives are exhibited; but this is not to be repeated above three Times. Emollient Glyſters of Milk with Bath Water, are likewiſe uſeful, to which may be added a ſmall Quantity of Saffron.

In the acid Scurvy, when the Blood appears thicker and blacker than uſual, among the whole Tribe of deobſtruent Medicines, nothing is better than

Steel Waters, which eaſily penetrating the ſmall capillary Veſſels, free them from all Obſtructions, without leaving any Heat or Acrimony behind them.

In this Caſe China Decoctions, ſtrengthening Broths made of Snails, Cray Fiſh, &c. with Aſſes and Goats Milk, ſhould be frequently taken and continued many Weeks; and if theſe fail there is little Help to be expected from Medicine.

Of the Rheumatiſm.

THIS Diſeaſe is common at any Seaſon, but moſt frequent in Autumn. Its Attacks are attended with frequent and ſlight Shiverings, a Fever, which increaſes with great Violence towards the Evening. This Diſtemper ſometimes continues for Months, nay Years, not always with the ſame Degree of Violence, but renewing its Paroxyſms from Time to Time; whence it eaſily changes into the Gout, the morbific Matter of both Diſtempers being the ſame. This Diſtemper chiefly attacks the Arms, Wriſts, Shoulders, Knees, Legs, and Vitals; quickly ſhifting itſelf from Place to Place, and is often attended with a Redneſs and Swelling. Bleeding is ſo neceſſary in this Diſorder, particularly when it affects the Head or Vitals, that it muſt be repeated ſeveral Times, according to the Strength of the Patient; emollient Glyſters may be injected the Days Bleeding is omitted: But in young People, and thoſe who have lived temperately, it may be cured by a ſimple, refrigerating, and moderately nouriſhing Diet; as living wholly on Whey, with Antiſcorbuticks, Emulſions, Ptiſans with Barley, Liquoriſh, &c. After Bleeding, Emeticks are to be exhibited, with gentle Purgatives, as the Counteſs of *Warwick*'s Powder, &c. with an anodyne Draught at Night. Concerning the great Efficacy of Emetics ſeveral Times repeated, our Pupil ſhould conſult Dr. *Muſgrave*. The Joints may be embrocated with equal Parts of Olive Oil, and the volatile Spirit of Sal Ammoniac twice a Day.

Epiſpaſticks are to be applied to the Parts affected, eſpecially in that Species of it called the Sciatica. *Muſgrave* obſerves, that when the Vegetable Kingdom fails, the Mineral muſt be called in; and Dr. *James* has writ a Treatiſe on the Uſe of Mercurial Preparations in the Cure both of this Diſorder, and likewiſe in the Gout. Dr. *Huxham* ſays, the moſt obſtinate Rheumatic Pains are to be cured by the following.

Take Vitr. Antimon. one Ounce, Vini Montani one Pint, Rad. Z. Z. pulv. one Drachm; macera per Dies quatuor ſine Calore et filtra per Chartam; the Doſe twenty or thirty Drops in any proper Vehicle, twice or three Times a Day, according as it operates.

This judicious Practitioner ſays its Effects are ſo wonderful, that whether your Intention is to open Obſtructions, or deterge the moſt inmoſt Receſſes of the Body, it is of ſuperlative Efficacy, nothing is a more ſafe or certain Sudorific. It may be given ſucceſsfully in Fevers of the ſlow and intermitting Kind, but more eſpecially in obſtinate Rheumatiſms.

Having premiſed thus much, a Relapſe is to be prevented by moderate Doſes of the Bark, Gum Guiacum, and Cinnabar of Antimony. This is likewiſe good in the Venereal Rheumatiſm. *Hoffman* confidently affirms, that crude Antimony reduced to a fine Powder, and given daily with a Decoction of the Woods, will cure the moſt inveterate Pains, and Contractions of the Joints; the Doſe is ten Grains, increaſing it daily till you come to half a Drachm.

FINIS.